Journal of Home Economics

VOLUME 34 NUMBER 7

Periodical C

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More to Life than Jobs
Dorothy Canfield Fisher

Our Heritage and Its Challenge
Gladys Branegan

Uncle Sam's Housekeeping Job
Arthur R. Burns

Wartime Developments in Textiles and Clothing
M. Earl Heard

Changing Food Habits
Mary Sweeny

Trends in Food Products
Dorothy E. Shank

September 1942

Published by
AMERICAN HOME ECONOMICS ASSOCIATION
WASHINGTON, D. C.

Our Convention Number . . . . .

THE JOURNAL OF HOME ECONOMICS is published monthly, except July and August, by the American Home Economics Association, 620 Mills Building, Washington, D. C.

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in it, some of them in much condensed form, some only through excerpts, others almost entire. They were selected to give readers the latest information on subjects in which home economists are most interested: foods and nutrition, clothing and textiles, family economics, family relations and child care, and household equipment. Also included is a running story of the convention.

HELD OVER FOR OCTOBER

are other excellent talks—quite as good as those herein published. That number will also carry the detailed report of the business proceedings of the annual meeting, as well as the articles which the June issue promised.

FOUR SECTIONS ARE MISSING

from this issue of the JOURNAL: the editorial *Comment*, the *Research* section, the state *News* section, and *From the Editor's Basket*, the section in which are collected tips as to free or inexpensive illustrative teaching materials, bulletins, booklets, and general background matter.

INCLUDED AS USUAL

are the *Abstracts* and the *New Books* section in which competent Association members evaluate new publications to help you decide whether to buy them for your library.

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of the

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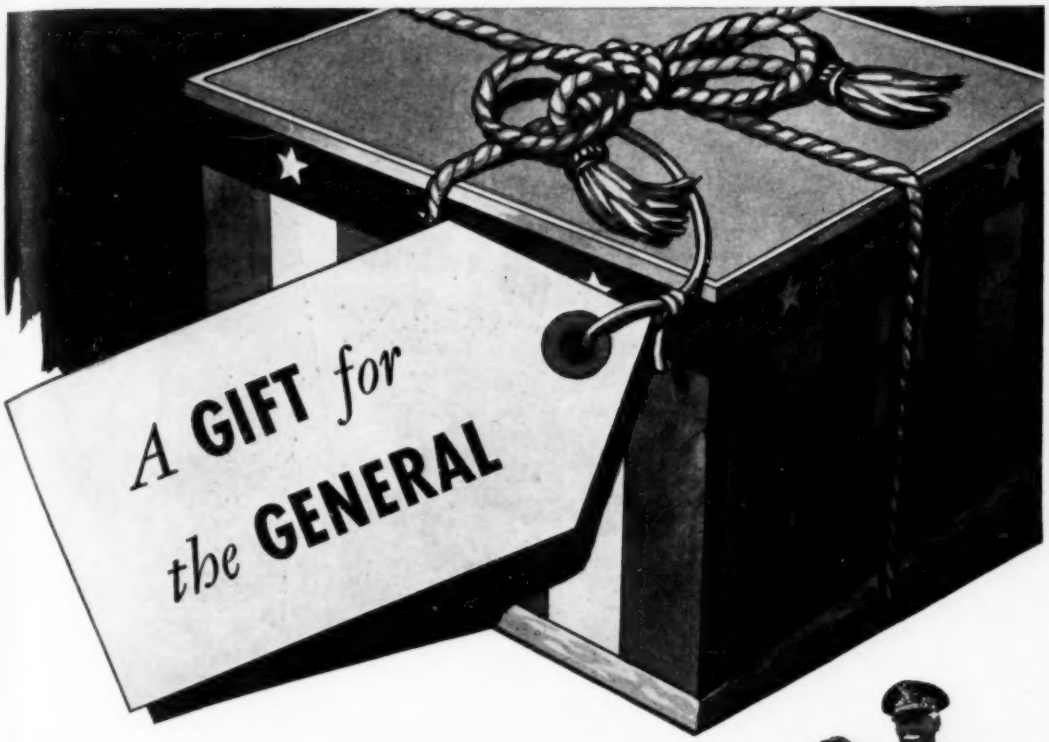

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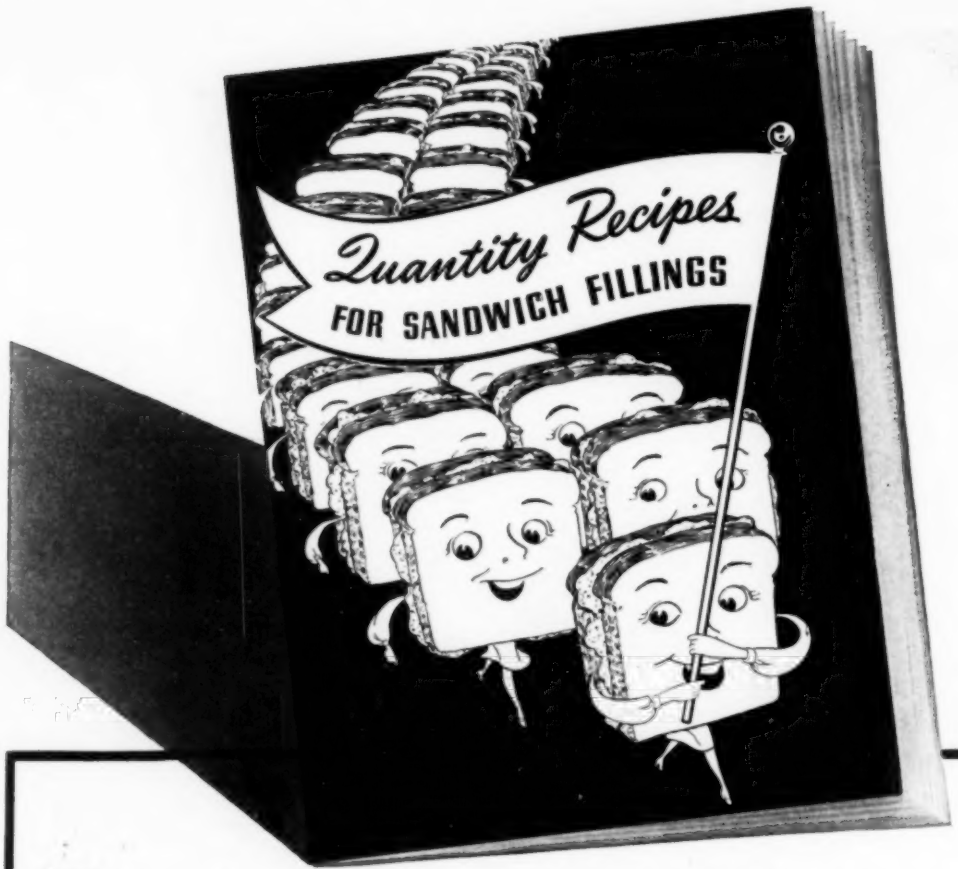

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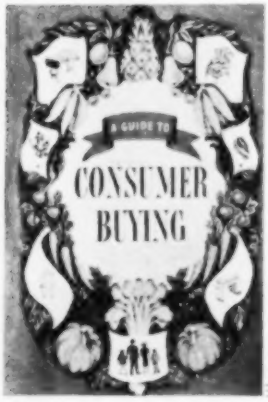

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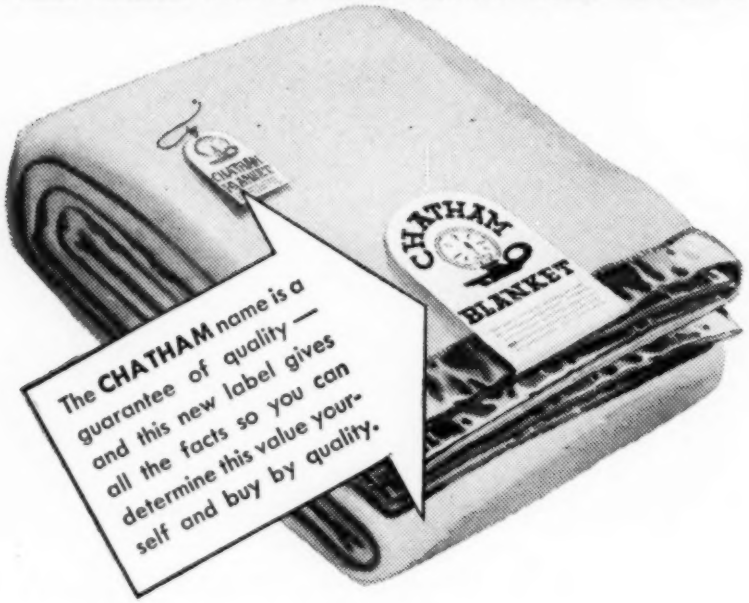
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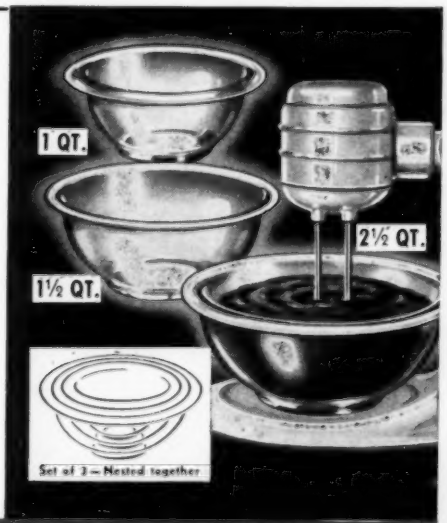

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Washington Snapshots

• Shifts in the national kaleidoscope and some of the events since AHEA's June meeting are tersely reported on this page, which is to be a regular JOURNAL feature.

• Reorganization of the consumer division of Office of Price Administration announced. This had been quietly proceeding for some time. Standards section now divorced from division. Division's work divided among 6 sections. Only woman section head: Ruth Ayres, chief of program activities branch. Her job (and that of the other 5) to interpret to OPA civilian needs; to civilians, consumer prices, scarcities, how buying practices can help the war program. Her background in part: code adviser to NRA's consumer advisory board, director of New York City's part of the BLS consumer purchases study, NCRC work. She has made a favorable impression on AHEA folk here as well as on those who heard her in Boston.

• GMPR (general maximum price regulations) campaign of OPA soon to be in high gear. Back of campaign: anxiety about price ceilings, which so far hold in check prices of 75 per cent of family budget items—other than food! Too many retailers haven't posted ceiling (March) prices. Too many shoppers haven't used influence to get compliance with regulations. Representatives of women's organizations (among them AHEA) called together July 29 to discuss campaign, which will be handled through OCD's war councils and consumer committees where such exist. Home economists urged to volunteer for work. Every retailer to be asked to comply with GMPR. Every consumer asked to promise: "I will buy nothing above ceiling price, nothing made of vital war materials I can do without." Window posters will show which merchants promise.

• One wing of real-estate profession is building a slush fund, organizing landlords to fight rent control. Henderson warned landlords not to "torpedo this essential measure for our country's security," pointed out that rent control act provides legal ways to adjust rents, that renters as well as real-estate men can organize to protect themselves.

• WPA given extra 6 million dollars to expand nursery school program, care for 50,000 more children—those of working mothers. Still unserved, around 350,000 such children. Charles Schottland shifted from the Children's Bureau to the Office of Defense Health and Welfare Services to co-ordinate child-care work of 9 federal agencies which hope to get funds to reach this remainder. High schools this fall will be asked to let girls in homemaking classes serve in local nursery schools, get class credit for work.

• Red Cross wants home economists to teach unit one (on nutrition, family life education, home management) of Red Cross course on home nursing. Results: lessons taught by specialists; nurses freed for other work.

• Fat salvage campaign under way after WPB's appeal to homemakers to sell fat drippings: "From two pounds fat, enough nitroglycerine to fire 5 anti-aircraft shells." And Louise Stanley, Bureau of Home Economics chief, points out somewhat anxiously: "Fats are essential to well balanced diets; the homemaker should save all drippings, use in cooking what she can, THEN turn in surplus for munitions."

• Come fall, U. S. Treasury Department will be knocking at school doors asking that pupils help with campaign to sell war bonds, stamps. Awards: certificate for each school, "liberty brick" for each state—bricks taken from historic Independence Hall during recent repairs. Home economists can use drive as take-off for lessons on inventories, budgeting.

• From OPA—WPB talks at USDA July 22–25 conference for state leaders, clothing and nutrition specialists: many over-all shortages to come, but we'll have enough for "biological needs" plus some "essential comforts"...too many variables for accurate forecasting.

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More to Life than Jobs

DOROTHY CANFIELD FISHER

A Vermonter, educated in Europe and the United States, married and the mother of two children, Mrs. Fisher has brought to her work as a novelist and as a writer on child training a rich background of experience. This article is part of her talk on June 24 at the Ellen H. Richards Centennial Dinner which concluded the Association's thirty-fifth annual meeting.

AND now I have come to the place toward which I have been steering a course from the first: to what *you*, here, could do to save the day for our American girls. For the girls of our nation, hence for the women. For the women, hence for the men and for the country. Your situation in American life makes possible a unique, an irreplaceably valuable service from you, and from you alone.

Changing Attitude to Home Economics

First of all you are an intimate part of our educational system. More and more unquestioningly does that system accept your presence in all schools—where you seemed so strange a presence only a few years ago.

The younger members of this Association may be impatient and nettled, sometimes, over the attitude of other educators to the subject you teach, may resent the assumption on the part of teachers of Latin, or mathematics, of innately superior "academic" rank. We older people, who can look back to the very emergence into visibility of your department in high schools and colleges, know that this assumption of educational dignity is only a scared whistling to keep their courage up. Whether they acknowledge it or not, these teachers see a steadily increasing shift in relative importance between the subjects they teach and yours.

Some of that change is actual, already here; much of it depends on you yourself to achieve, by realizing the toweringly vital quality of what you might do. In any case, there you are, firmly established in living contact with more American girls at the most intensely impressionable period of their lives than any other educators, teaching a subject in which, by the nature of things, they have a more living interest than in any other. If you keep it living!

A Homely Kitchen Herb

What is the subject you are teaching? It appeared first in the back yard of the school, looking very modest, like a homely, pleasant little kitchen herb, small and inconspicuous—fresh and green to be sure, with savory leaves and succulent stalks. But only sewing and cooking—plain skills of the back regions of humanity's home.

Everybody took for granted that he knew all about the seed which, almost by chance as it seemed, had sprouted there, in the modern school, instead of in its ancient home between mother and daughter. Nobody wondered why this old, old plant had ap-

peared on ground which never before had grown anything but book-learning. It was vaguely supposed to be the same sort of concession to the "practical" as manual training for boys.

But like many another plant transferred to a new soil and a new climate, this one has grown out of all recognition—sometimes, even, I think, in discouraged moments, out of all recognition of some of the older members of your profession. They came into the profession when it really was only sewing and cooking, and so they still think it is.

Then a Tree

But the need of modern girls is for help in learning how to deserve and to attain that full human dignity and usefulness in modern life which cooking and sewing gave them in pre-industrial days.

Your profession has a unique potential power to give that help in managing their lives; and in response to the call of the new needs of modern girls, it is shooting up, tall and strong as a tree, no kitchen herb at all, but a mighty new branch of applied learning. Looking wonderingly at it from the outside, observers of the American scene feel that its name is not cooking and sewing at all, but the art of living.

"Home economics"—how could a subject with that name have remained what it began, in a society of which the economic structure has been totally transformed by the machine and the extreme application of the principle of the division of labor? Nothing else in our way of life has remained unchanged under the impact of that tremendous revolution in our system of production and distribution. Your profession could not. It has not. And it must not. If your idea of your work does not grow, vitally, vigorously, to meet the new needs, so desperately although so inarticulately felt by American youth, you will be betraying a great trust. But you will have to stretch some, to grow fast enough.

You are strategically placed to grow to the great intellectual and spiritual stature in which alone you can cope with your enormous possibilities as educators.

Service, Not Profit Making

Your life is laid, not in the field of profit making, to which, strange and alien to women, so much of their former work has been taken. It is in that field of service most closely connected with what has been from the beginning the basic occupation of all women. In your profession, therefore, it seems natural, as in no other, for women to have authority. No implicit silent pressure from public opinion forces you to accept subordinate positions, or else fight about it, as in so many other fields of work for women.

I have reminded you as a hopeful sign that there *are* women—a few—who are heads of colleges, directors of huge and humanely run prisons and reformatories, superintendents of hospitals, even heads of academic departments in colleges. Not many. But enough to be significant.

But the conduct and development of your profession is wholly in your hands. How we pray that you may prove yourselves worthy of this tremendous responsibility. It is a challenge to your deepest, finest powers such as no other group of women ever had, a challenge to intelligence, determination, imagination, conscience, courage—but above all to vision.

The Need for Vision

What does that word "vision" mean? It is so often used sentimentally or vaguely or in a weak goody-goody sense that we forget it really means prophetic—the power to see far into the true meaning of things, into what they are and what they might be, into the future. A special moral obligation is laid on you to have that power of vision because the door to the future is open to you more than to any other educators. Because it is possible for you to step through that open door into a brighter future than humanity has ever known, taking our girls with you.

Of all the subjects taught in our colleges

and secondary schools, yours is the only one still close enough to and vitally connected with living that it can be used, practically, concretely, immediately in improving the quality of existence for our young people. You can, more than any other teachers, help them find their way, but only if you have vision and courage to be their leaders.

Formerly. . .and Today

Formerly, when women were occupied all day long in cooking and sewing they were not only meeting material needs for themselves and their families; they were acquiring and practicing and refining a great number of skills, some of which, in the case of specially gifted practitioners, led directly to one or another of the arts. In practicing those skills, women were engaged in work that was literally creative, that is, the laying hold of raw materials and shaping them into finished products, useful, necessary, or beautiful.

Buying things which other people have made cannot be made a creative occupation in the same sense. Nor can any Ruskinian, despairing attempt to swim against the current prevail. You would criminally waste your time and utterly misguide the young women you are set to lead into a better way of life, if you tried to teach them to provide the cloth for their garments by spinning and weaving, as their great-great-grandmothers did. They must live in the present like any other of the generations of humanity.

What they need from you so as to do that, as far as this one concrete instance of getting garments goes, is intelligence in buying, not in constructing garments. This does not mean only how to choose well according to their income, tastes, and needs among the myriads of garments made for them in factories. No, it means how to make that intelligent choice not only well but quickly, so that their time can be saved for the creative efforts society urgently needs from them. Quickly and seldom—not at length and often.

To teach them this you will need to show them how to break through the invisible psychological web which modern retail business weaves around them, tying down with millions of small strands of prejudice and false standards their instinct to grow and develop to their full stature as human beings.

To teach them this, you will need to teach them, in the most living and immediate meaning of the word, some sociology and economics (perhaps learn some, yourselves)—the real kind, as it affects real people. You must show them that the money spent on the incredibly costly advertising and distributing mechanisms for forcing and shaming women with money into buying more than they need, would be infinitely better spent in devising ways of getting money for buying goods into the hands of people who now have not as much as they need. To teach girls really intelligent buying, in this sense of sales-resistance, will take all the courage you can summon, in our modern world.

Stiff Mental Joints

After Christopher Columbus discovered the New World, it took the human race a century and a half to get over its inertia enough to move into that new geographical spaciousness and begin living there. An invisible wall of old fixed habits, lack of imagination, mental inflexibility kept humanity from taking advantage of the immense new territory opened to it by the 15th and 16th century explorers.

In the same way, habit and unimaginative stiffness of the mental joints has prevented us, for a century and a half, from profiting by the new time-spaciousness given us by modern mechanized, drudgery-eliminating methods of production and distribution.

We refuse to realize that we have, each of us, many more hours every day than our great-grandfathers had, in which we are free to choose what we will do. We allow ourselves to be exploited by those whose business it is to sell things, and we spend in the dull arid practice of possessiveness much of this new free time which might be used for the most gloriously creative lives ever made possible to large numbers of human beings.

Our Heritage and Its Challenge

GLADYS BRANEGAN

Dr. Branegan is dean of the division of household and industrial arts at Montana State College, Bozeman. She gave this talk at the Ellen H. Richards Centennial Dinner as the outgoing president of the American Home Economics Association.

WHEN I chose the subject "Our Heritage and Its Challenge" I had just enjoyed reviewing the book *The Life of Ellen H. Richards* and also the Lake Placid Conference Reports. But as others were designated to pay tribute to our founder, Mrs. Richards, on our program this evening, my remarks will be a brief consideration of the origin of our Association and some of its current problems. What I have to say could be likened to the plain food in a dinner preceding the dessert.

As we know, the AHEA was organized in December 1908 as the outgrowth of the work of a group of pioneer home economists meeting annually for ten years at Lake Placid, New York. The original membership of the Association was 700, and the publication of the JOURNAL OF HOME ECONOMICS was its first major undertaking.

I wonder just how well the accomplishments of home economists working together in the AHEA during the last 34 years would measure up to Mrs. Richards' expectations.

Our Roll-Call

I am sure she would be interested to know that today about 38,000 college students are majoring in home economics in 350 colleges; that there are about 27,000 teachers of home economics; that 2,600 extension and 2,300 Farm Security workers are serving the rural homemakers of the country; that there are more than 5,000 active dietitians; that 450 names appeared on the last directory of home economics research workers; that there are 652 qualified members in the home economics in business department; and that home economists are also serving in various social and health agencies.

Changes in the Constitution

I am confident that she would have approved the change in the constitution in 1920 which provided for the affiliation of state associations and resulted in an increase in membership during the next twenty years from one thousand to fifteen thousand individuals and the organization of 2,300 student clubs.

Again, in view of her high regard for sound learning and professional standards, it would seem logical that she would sanction the 1940 constitutional amendments which provided educational requirements for our members and increased our dues so that all active members would receive the official JOURNAL.

Mrs. Richards' Vision: Our Goal

Our Association was indeed fortunate to have had such a leader as Mrs. Richards for its first president. Her vision of what our movement could contribute to the betterment of the home and family life went far beyond our present accomplishments and for many years will continue to offer us a challenge of unfulfilled goals.

Holding this thirty-fifth annual meeting in Boston on the one hundredth anniversary of Mrs. Richards' birth has helped us more fully to appreciate the priceless heritage we received from our founders and to reaffirm our singleness of purpose, to improve the home life of America.

Membership, Income, Services

Growth in our Association membership makes possible greater services to individuals and groups. Greater services are, in turn, the best means of building up memberships.

Through income from convention registra-

tion and exhibits we have been able during the last few years to accumulate our present reserve and surplus funds at the same time that we have inaugurated new services to the states. These services included the addition of a field secretary to the headquarters staff and the launching of two publications, the *National Magazine of Home Economics Student Clubs* and the *Consumer Education Service.*

In only two of the last seven years has it been necessary to use any of our surplus funds. In fact, such substantial balances have accumulated since 1935 that in August 1941 we had a reserve of $10,000 and a surplus of over $20,000. Under adverse conditions these amounts, of course, could disappear very quickly with a yearly budget of nearly $77,000.

If wartime travel restrictions force us to give up our 1943 annual meeting, program adjustments would be necessary. Briefly, our two alternatives then would seem to be a drastic curtailment of our present services, due to loss of convention revenue, or an all-out drive to put our present junior membership on an active basis and to secure additional members.

The latter plan is the one in line with the courageous vision of our founders. Our Association must grow if we are to be strong enough to meet the complex and challenging problem with which we are now confronted. The estimated 60,000 nonmember home economists constitute a great reservoir from which to draw new members. If during the next year each of us recruits one new member, the strength of the organization and its potentiality for service during these critical times will be immeasurably increased.

Wartime Services

The AHEA was the first women's organization to plan and carry through a nation-wide service registration. Our Association has a Washington Lookout Committee and has worked actively on many wartime programs and committees, including the National Nutrition Program, the U. S. Office of Education Wartime Commission, the Committee on Management Problems of Families in the Emergency, the Consumer Division of the Office of Price Administration, and the Office of Civilian Defense. The multiplicity of our interests and connections offers us a wide range of service opportunities.

This multiplicity also increases the difficulty of concentrating the wartime efforts of our members on a single distinctive Association program of reasonable proportions. We all agree, I am sure, that the important thing is that our home front be made strong—that we should not worry about who initiates this or sponsors that program.

Possibly the wise course for our Association lies in continuing to expend our energies in these and other co-operative enterprises to fulfill this aim. Operating under this policy we should be able to make other individuals and groups increasingly conscious of the unique contribution which we home economists can make to the service of our country in war, as well as in peace.

In Unity, Strength

To accomplish this we must think of ourselves professionally, first and foremost as home economists, and second as teachers, nutritionists, dietitians, extension agents, Farm Security workers, homemakers, women in business, or research workers.

One of the important functions of the AHEA is to serve as a unifying influence in keeping our subject-matter and vocational specialists informed as to contributions and problems of other phases of home economics. Home economics has enjoyed special consideration and privileges because its purpose is to serve homemaking, which is a composite, not a specialized, vocation. In the future, as in the past, home economics will continue to move forward as a unified movement, not as an aggregate of parts.

The Journal

Our JOURNAL is our most important unifying medium and is effective to the degree that it is supported by our members. The excellent study carried out last year by the committee

appointed to determine the type of periodical our membership wishes proved most helpful to our new editor in her efforts to make the JOURNAL indispensable to our members. To supplement this study she initiated a reader-editor plan through which she gets reactions to various issues of the JOURNAL from 46 members representing all parts of the country as well as all divisions and departments of the Association. Their reactions, and those of the membership as a whole, to the changes introduced into the JOURNAL have been very gratifying.

Miss Hostetter has plans for many new features that await only the funds which will come with more active members.

A separate research publication is the wish of many of our members. Such a research publication would doubtless have to be financed on a subscription basis.

Headquarters Staff

I have enjoyed my six short visits at our Washington headquarters as they have given me an understanding of the many functions performed by our well-qualified, hard-working headquarters staff, who serve as the eyes, ears, and mouth of the Association throughout the year.

The Association could make good use of some additional staff members, but any thought of expansion will doubtless have to be given up for the duration.

The Handbook

Frequent turnover in our headquarters staff as well as the ever-changing group of state and national officers and committee chairmen seemed to require an undue expenditure of time on the mechanics of organization. To reduce this and provide necessary information in a readily available form for all members, an Association Handbook has been issued which we hope will free time of all our workers for the really significant phases of our program.

Consumer Education

Dr. Paul Nystrom two years ago said "home economists are responsible for at least three-fourths of all the things that will eventually be considered worth while in consumer education." The AHEA has grown in consumer wisdom through 13 years of co-operation with the American Standards Association and since 1937 with the National Consumer-Retailer Council. To business representations in these organizations, home economists have brought both the consumer-use point of view and technical knowledge.

Our *Consumer Education Service*, which Mrs. Howe is in charge of, has proved invaluable to business people and libraries as well as to our own members.

Other Projects

During the past biennium the Association has sponsored several projects in the field of education. A co-ordinating council was set up with equal representation from our department of elementary and secondary schools, from the American Vocational Association, and the home economics department of the National Education Association. Its primary concern is home economics education in the elementary and secondary schools. Its functions consist of reviewing programs of work of the three groups and making suggestions for co-operative projects. This council has held its second meeting in Boston this week.

The department of colleges and universities is rounding out a study on junior colleges under the leadership of Dr. Ivol Spafford. Miss Clara Brown has been granted the Ellen H. Richards fellowship for 1942–43 to carry on a most significant project in co-operation with the North Central Association of Colleges and Secondary Schools: a study of functions and standards for home economics in the liberal arts college.

Recognizing as we do that the promotion of home and family life which best furthers individual and social welfare is the goal of all the work in the AHEA, we regret that the depletion of the Child Development Activity Fund made it necessary for us to discontinue the *Family Life Education Service* and also the services of our part-time worker.

In lieu of this, we are publishing more material from this field in the JOURNAL. The book *Living Together in the Family* is being revised by Mrs. Mildred Weigley Wood, and we expect it to be available for second semester classes next year. All income from the sale of these books is reserved for special projects in family life education.

I hope that our Association will give special study to postwar problems which may come upon us suddenly and for which we must be prepared. We must be inspired by a deep conviction that out of the suffering and loss of this war there will come a better sense of values and a more democratic sharing to the end that no home in our country will go without minimum essentials of health, convenience, and comfort. Many forward-thinking economists tell us that this is not a vain hope if we develop an understanding and acceptance of a few fundamental requirements.

To Enrich Our Heritage

In conclusion, then, our immediate problem is to choose from among the many important things which need to be done, the ones which we, because of our special training, can do better than others. Happy will be our state if, when the crisis is past, we can see that because of quick, intelligent readjustments our profession is accorded greater opportunities to serve the homemakers of the country. Individually, we all need to include in each day's plan those activities which keep us in good physical and mental health and capable of carrying on through to victory and postwar adjustments.

We believe that this meeting has enabled all of us to see more clearly the relative importance of the tasks which await our attention, and that through our collective efforts the heritage which has come to us from Ellen H. Richards will be enriched, and in turn become a challenge to our successors.

The Home Economist's Service

The impacts of the war have not as yet fallen heavily upon most American consumers, but within six months or at most a year there will be serious scarcities. It is to meet these new problems that individual and family budgeting must be revised, that new facts rather than old habits must guide our buying, that skills in the preparation, processing, and upkeep of consumer goods must take new forms, and a home front must be established that will not break when the bad news accumulates.

It is the privilege as well as the duty of home economists to assist the consuming public in making adjustments in their standards of living. They can help the consumer understand reasons for difficulties she will face and encourage her to refrain from overbuying and hoarding, from wasting goods, and from struggling to obtain unusually scarce goods. They can help reconcile her to getting along without many goods. They can encourage interest in garment making, in thrift and payment of debts, in buying war stamps and government bonds, and in taking care of what she has.

One of the most promising factors in our situation is the existence and strength of the home economics profession and the contributions that it will make towards helping the masses of consumers in this country to better living.
—From paper by PAUL H. NYSTROM, Columbia University.

Uncle Sam's Housekeeping Job

ARTHUR R. BURNS

Dr. Burns is chief of the allocation branch of the Division of Civilian Supply of the War Production Board. He was born in London and was graduated from the London School of Economics but is now a citizen of the United States. He is on leave of absence from Columbia University, where he has been a faculty member since 1928.

I AM sure that you have not invited me here to explain why civilians are being asked to make sacrifices. We all see war as an ugly diversion of the means of pleasant, peaceful living into a horrible destruction of both men and the past fruits of man's labor. We have not chosen this course, but we must pursue it to keep alive the opportunities for peace and decency in the future.

I assume, however, that you are interested in the sort of problem we face and the way we try to deal with it, and will speak according to that assumption.

First Curtailments

You probably heard of the Division of Civilian Supply of the War Production Board for the first time back in the summer of 1941, when it proposed to curtail the production of automobiles, refrigerators, washing machines, and other durable goods.

That the Division of Civilian Supply led the way in taking things away from civilians surprised some people. The Division conceived its task, as it still does, to minimize the sacrifices suffered by civilians; and these curtailments, although they seem like a strange way of protecting the consumer, were necessary in order to avert greater privations. We were being besieged by the visits, letters, and telegrams of small businessmen who were arguing, threatening, and pleading for quantities of raw material which were infinitesimal compared to even one day's consumption by, say, the automobile industry.

Raw material suppliers, observing customary business practice, were favoring their largest customers, giving them as much material as they could use. Since the Army and Navy were already taking large amounts too, there was little or nothing left for the small producers.

If only these larger concerns had been making the most essential civilian products, and the smaller concerns the less essential, this would have been an unfortunate but necessary development. Actually, the case was almost the reverse. Some of the smaller companies, for example, produced repair and maintenance parts required to keep municipal water systems in operation; and one telegram from a certain Ohio county authority predicted a breakdown of the water system within two months, unless their supplier could obtain steel.

Moreover, "priorities unemployment" was then a scourge. The bulk of this priority unemployment was caused by the fact that companies who used very small amounts of scarce materials compared to the number of their employees were being crowded out of the market by the great mass producers who used very large amounts.

A ton of steel will in normal times provide one automobile worker with one month of work; in other industries, it will provide five or more workers with a full year of work apiece. In the chaos that reigned a year ago, the automobile worker was getting his additional month of employment, and the five other workers were being laid off indefinitely.

Effects of Shipping Losses

The withdrawal of goods from civilian life is due only partly to the needs of war. It is due also to the destruction of war. I need only recall rubber and tin. But many other goods from abroad are no longer available as freely

as before because of the loss of shipping as well as the need to use that shipping where it will aid the military effort.

The loss of our former imports of burlap coincides with the need of burlap and sandbags for increased bagging of all kinds of war products and for indirect military output. Since the jute used in one good-sized rug will make 48 sandbags, there is little question that we will sacrifice the former for the latter.

Of course it is not materials alone which may be short. Certain staple articles of food and drink are now scarce in spite of the fact that they are piling up in warehouses overseas because the U-boat campaign forces us to economize on shipping.

Hosiery, Cellophane Hit

The needs of war strike at some unexpected spots, among them the usually well-groomed leg of the American woman. The expanding of the air force requires an expanded supply of parachutes and every one of them absorbs enough silk to make 185 pairs of stockings. Hopes of using nylon for hose disappear when the need becomes so great that Army requirements cannot be satisfied by silk alone. Furthermore, nylon is an ideal material for powder bags. Recourse is then had to rayon, and the supply of rayon hosiery is being expanded far above peacetime levels, but that fiber is also needed to replace certain uses of cotton and wool.

Let us consider another familiar product, Cellophane. Until recently, when airplane motors were shipped abroad, they were coated with a heavy grease to protect them during shipment. On arrival this grease had to be carefully removed. Today these motors are wrapped in Cellophane and arrive in perfect condition with considerable saving in time and labor, lost under the former grease method.

To make Cellophane you need glycerine, and glycerine is an extremely vital war material produced from fats and oils, much of which must be imported. To import fats and oils requires ships, and ships so used cannot carry other essential products. Consequently, your next loaf of bread may be delivered in waxed paper instead of Cellophane.

Aluminum Drafted

Sometimes the connection between battles of production and shortages on the home front are more obvious. If we are to have 60,000 planes this year, and twice that number next year, there can be no aluminum for cooking utensils. In fact, there is not enough aluminum even when it is all taken away from the kitchen, so that plywood airplanes are now being used for training purposes.

Furniture factories are getting ready to turn out that plywood, and one reason that they are so willing to make the switch is that the brass joints and fixtures which they formerly used in furniture are now needed for such articles as cartridge cases and electrical connections.

Foods, Clothing Situation

We can safely say that the supply of food will be large enough to provide as nourishing and balanced a diet, on the whole, as we have ever had, yet certain foods will be scarce or unknown, because our allies and our soldiers across the sea need particular kinds of foods. By removing canned salmon from the American market, an excellent source of protein can be supplied which will stand heat, cold, and rough treatment in shipment. Americans can substitute more perishable foods equally high in protein content.

Shipments to Britain and Russia must emphasize the so-called protective foods, such as citrus fruits or their extracts, certain types of fats, dairy products, and eggs. Consequently, the American farmer is being called upon to produce more than ever before.

Next to food, we are more closely concerned with clothing than with any other type of product. Everyone knows that the soldier requires a large and varied wardrobe. He consumes about 160 pounds of wool, compared to the nine pounds of the average citizen. One pair of his shoes absorbs enough leather to make two pairs of ordinary men's shoes, or

several pairs of women's shoes. Since in addition our ever-faster-turning industry needs leather belting and other supplies, it is not surprising that shoes will be less plentiful than in recent years.

Decisions on Horseback

Now how do we try to keep house for over 120,000,000 people just at the time when the job is getting more difficult? We are aware of the fact that the job has been done hastily, often without all the care that would have been given to it if we had had as long to prepare as Hitler had in the tranquil times of peace. Decisions are usually difficult and must sometimes be made, so to speak, on horseback. But the alternative is chaos, and we all know that frugal national housekeeping, as well as avoidance of charges that we were discriminating against some industries, demanded that these controls of civilian goods should be planned.

In the Division of Civilian Supply, whose particular interest is in consumer goods, we have been compelled to work out an elaborate system of criteria for the allocation of materials between competing industries. In deciding whether or not we ought to allocate to the makers of a particular product, we have had to consider the urgency of the need satisfied by the product; the availability of more or less satisfactory substitutes; the serviceability of existing supplies; the importance of the industry as a consumer of scarce materials or scarce labor, power, fuel, and transportation; the contribution which the industry could make to war work; the requirements of industries for necessary maintenance and repair. Our real task has been to select among functional goods.

Durable Versus Nondurable Goods

The most fundamental distinction which we have made is that between durable and nondurable goods. Cessation of output has an utterly different meaning for each type. Nondurable goods are available to us only if there is a continuing flow of them; the use of durables, on the other hand, depends upon the general stock which has been accumulated over a period of time, and which can be used up only over an equally extensive period.

If we were to allot no more steel for tin cans, then in a few weeks or months, after our present supply was used up, there would be no more canned food. But our orders stopping or limiting the output of refrigerators, washing machines, stoves, rugs, electrical appliances have certainly not meant that these items have vanished from our homes.

For example, the average life of an electric refrigerator is about 15 years. In other words, the war will have to last that long before the great bulk of our refrigerators is gone. Even this is too pessimistic a view, for the policy of the War Production Board has been, and still is, that maintenance and repair parts shall be supplied for all durable goods now in operation. With these available, most of our durable goods can be kept operating almost indefinitely.

But even durables do not last forever, especially the smaller items. Glasses and dishes break; pots are hopelessly dented. In considering such items, the Division of Civilian Supply is guided by the availability of substitute materials. The elimination of aluminum could be ordered without qualms because enamelware and glass could be used in its place. In fact, glass, earthenware, and wood are simply reoccupying the place from which they were once ousted by metals and plastics.

As civilian needs must draw upon the same supply as must the armed services and the exporting agencies, the Division of Civilian Supply is represented on the Requirements Committee, the End Products Committee, and the recently established Food Requirements Committee. Each of these committees also includes representatives of the Army and Navy, Maritime Commission, Lend-Lease Administration, Board of Economic Warfare, and WPB Division of Industry Operations. On the Food Requirements Committee, headed by Secretary of Agriculture Wickard, are also representatives of the State Department and the WPB Materials Division. Each com-

mittee determines the total available supply of raw materials, or end-products, or foods, as the case may be, and allots them among alternative uses. Each use is covered by one of the agencies which make up the committee, and the agency's task is to divide the allotment among specific industries and firms. Each agency is therefore obliged to draw up schedules of supplies and requirements for each type of product under its jurisdiction; and the Division of Civilian Supply makes these estimates for civilian goods.

Few Effects As Yet

Remarkably few of the restrictions already ordered have really hit us yet. This is partly because those goods whose production has been most drastically curtailed have been durables, and the only persons affected have been those who planned to buy new goods. The heavy purchases of durables during 1940 and 1941 meant that many consumers stocked up and will not need new products for some time.

Moreover, so much material and so many finished goods were in the business system that the "pipe lines" were full. It is still possible to get silk stockings. Inventories in the hands of businessmen today constitute a four-months' supply—higher absolutely and relatively than ever before. What, however, can we expect as we drain out those pipe lines?

Forecast for Houses, Furniture

As far as the basic structure is concerned, the home will be kept in good repair. Roofing materials, lumber, paint, and hardware will be available, although many of the items will be made of substitute materials.

No striking changes are to be anticipated in the appearance of the living room or the bedrooms. The usual furniture will still be produced, although much less upholstery will be available. The shortage of jute and other fibers will also cause a shortage of new rugs, and our present floor coverings will have to last a few years longer.

Lamp and light fixtures will present the usual appearance, although close examination will reveal that wood, plastics, glass, or earthenware has replaced the metal, except for functional parts, where no substitute is possible. The metal consumption of mattresses and springs will be out, but no general shortage of sleeping furniture is expected, and there will be no restriction on repair and renovation of items now owned. However, there will be no more duck or goose feathers for pillows and comforters, nor will blankets be made with more than 80 per cent wool. All this is consistent with health and comfort.

For Linens, Plumbing

The contents of the linen closet will probably not be diminished below the necessary level. Quality will be somewhat lower, and housewives will do well to take better care of their textile products than they have previously.

Bathroom linen, like other cotton textile products, will be available, although not in the present extravagant range of patterns and colors. A shortage of rubber and certain plastics will eliminate those colorful and useful shower curtains. The recurrent rumors of a soap shortage are unfounded, partly because glycerine, an essential war material, is a by-product of certain soapmaking processes.

Metal plumbing supplies will be available for replacement and repair but not for modernization and improvement. A cracked bathtub, for example, can be replaced; but a serviceable tub cannot be discarded merely because the new style tubs are flush with the floor. As for towel racks, toothbrush holders, medicine chests, the glitter will be supplied by glass and the color by nonscarce plastics.

Other Supplies, Services

The shortage of metal will be most apparent in the kitchen. Metal table tops, drainboards, cabinets, and vegetable bins will soon be unobtainable. New refrigerators and stoves are frozen and will be released only for houses in war production centers.

Moreover, since fuel oil and electricity are relatively scarce as compared with natural or manufactured gas, efforts are being made to

encourage a switch from the former to the latter source of fuel. In some homes a large part of the food preparation is done by electrical appliances. Provision has been made for repair parts to keep them in good working order. Aside from sterling silver, tableware will be restricted in quantity and will be of lower quality during the war, and no stainless steel will be available for kitchen knives. Other serving and eating utensils which are made of plentiful materials will be freely available and will replace many metal appliances.

New laundry equipment will not be produced, but repair parts will, together with tubs, boilers, and pails. Floor waxes and polishes will be out of production, but there will be no decline in the output of other cleaning and polishing supplies.

The home depends as much on light, heat, and services as on furnishings and equipment. Already consumers in 17 eastern states have been asked to cut their consumption of fuel oil by 50 per cent, and plans are being made to convert heating units from fuel oil to coal. The resulting increase in the demand for coal, as well as the expected shortage of transportation facilities, has caused us to urge householders to buy and store their coal supplies as soon as possible. The residential consumer of electricity has as yet been little affected by power shortages, principally because his consumption does not bulk very large in comparison with industry's.

The local municipal services, which are as important as anything yet mentioned, will probably be well maintained. There is no wartime threat to the purity of the water supply, or the efficiency of waste disposal, except that the shortage of rubber may cause some decline in the frequency of service by the municipal garbage collector, by the milk and coal companies, and by the laundry.

And Finally . . .

This picture is in striking contrast with that of the homes in almost any other part of this world at war. Most of us must feel a little uneasy at the contrast. We are in for no very great privations, and no fall in living standards below levels of 1932. Even if production should not be very much above 1932, its distribution will undoubtedly be much better. Today, with practically full employment, we may be bedeviled by various shortages, but nobody will be in so helpless and destitute a position as so many millions of us were then.

Not only is it the duty of the Division to obtain as great a quantity of civilian output as can be done without hampering the war effort; it is also one of the duties of the Division to try to insure a fair distribution of sacrifices. This means that if shortages of necessary goods become acute, or if the unsatisfactory functioning of the distribution system forces us to do so, we must ration to insure a minimum to every family.

We can do much to avoid the expense and inconvenience of rationing by buying only those articles we need and only as we need them, by avoiding hoarding, and by following the published advice of WPB and OPA.

The greatest hardship imposed by the war upon the home arises from a condition over which the War Production Board has only slight control. American homes will suffer most from the absence of the young men who have gone to the front to protect them from Axis tyranny. The more quickly we win the battle of production, the more of these relatively unimportant sacrifices we make on the home front, the more quickly will the war for the preservation of the integrity of the individual be won, and the more quickly will our young men return.

Canada Fights "Hidden Hunger"

MARION HARLOW

Miss Harlow is assistant director of the Nutrition Services of Canada's Department of Pensions and National Health. She has had 15 years of teaching experience: in Middleton, Nova Scotia; in Montreal; in Yorkshire, England; and in McGill University. She was also nutrition supervisor with a Montreal nurses' order.

THE slogan coined by your Claude L. Wickard, "Food will win the war and write the peace," has aptly emphasized the role of food as a weapon, the effectiveness of which is governed not only by its availability but by the degree in which the protective foods are eaten by populations.

During one month the labor lost through absenteeism in Canadian war industries from remediable illness would have built 45 medium bombers. Knowing that part of the blame for this state of affairs can be laid to faulty diet, the Canadian government in November 1941 took steps to fight such conditions among the total population through the organization of Nutrition Services, under the Department of Pensions and National Health, in Ottawa.

In briefly outlining our method of attacking this arch saboteur "hidden hunger" I shall deal with the Canadian nutrition program under four main topics: work in war industry, co-ordination of community programs, co-operation with other government agencies, and plans for the future.

War Industry

A representative of Nutrition Services first visits a war industry to inspect food facilities and recommend improvements. Questions she asks are: (1) Has the plant a cafeteria? If not, is there a possibility of one at a later date? (2) Is there a canteen? If so, is it operated by the plant or on a concession basis? (3) Is there any other meal arrangement, such as a mobile canteen, a lunch area fenced off in the main plant, or a mess room where workers may eat lunches carried from home? (4) Are protective foods provided? She makes personal observations and discusses conditions with the general or personnel manager, with the dietitian, and with the plant doctor and nurse.

More recently our representatives have observed meals eaten by individual workers so as to learn the emphasis desirable in an educational program. Our surveys revealed that many of the younger workers, both girls and men, dash from bed to the plant. Then, by midmorning or earlier they stave off the pangs of hunger by swallowing cake or pastry and soft drinks or coffee bought at the canteen. We are preparing a series of five pay-envelope fliers written in popular terms to attack such dietary faults.

One of the three already sent out queries, "Did you have a 'Dagwood' breakfast this morning? Surely not!" The flier then outlines what makes a breakfast good: "Something *appetizing* to put you on your toes: dried, canned, or fresh fruit, or fruit juices. Something *filling* to give you energy: oatmeal, toasted Vitamin B bread, eggs. Something *hot* for extra vitality: cocoa, coffee, etc."

These fliers also can be a means of reaching into the home, which, in the last analysis, should be considered for any educational scheme in industry since normally more meals are eaten at home than in the plant.

Community Programs

Ideally, a community nutrition program either runs simultaneously with or follows contact with workers in the plant. Accordingly, the members of the field staff for Nutrition Services have encouraged the formation of a community nutrition committee during their visits to an industrial area. To help establish community-wide nutrition consciousness the staff has distributed to key people in many

centers, rural and urban, whether industrialized or not, mimeographed suggestions for organization and for getting all community groups to pool their resources. This has been possible through the assistance of such national organizations as the National Council of Women, Women's Institutes, and the Red Cross, local representatives of which in many instances have been the sponsoring group for the campaign which has launched the community program.

Provincial committees, similar to but smaller than the state bodies in the United States, have been set up in most provinces by the Provincial Health Department. These committees analyze the needs of that section and then work with Nutrition Services.

To maintain year-round interest following the six nutrition classes taught by volunteer home economics teachers and dietitians, various projects are carried on. "Food for Health" displays in grocery stores, breakfast menu surveys among school children, and weekly newspaper columns of local interest, based on releases sent out by Nutrition Services, are just a few of the many ingenious devices introduced for this purpose.

Co-operation with Other Government Agencies

With the help of writers on the staff of Public Information, news stories of the Nutrition Services have gone out each week to Canada's 87 daily newspapers.

In preparing them Nutrition Services has co-operated with other government agencies, including not only Public Information but the Departments of Agriculture, Munitions and Supply, and Fisheries; the Wartime Prices and Trade Board; and the Committees on War Finance and National Salvage, all of which groups are concerned with the needs of the consumer. The co-ordinated information appeared first in mimeographed form but is now issued as a clipsheet.

Let us trace the history of an item which appeared early in May. Nutrition Services, aware that food must be interesting as well as nutritious, decided that a release on herb gardens would be most timely. However, a number of points had to be cleared. What statements had been released or were anticipated by the Department of Agriculture? Could Munitions and Supply tell us if enough seeds would be available if there were an enthusiastic rush to plant herb gardens? Also, would there be enough garden tools?

After receiving satisfactory statements from the aforementioned departments, the writer from Public Information produced a few telling paragraphs in very short order.

The clipsheet is useful not only for dispensing information on commodities and food values but also for keeping the public in touch with the plans and policies of the various departments.

Plans for the Future

Nutrition Services is taking a long view of the situation and trying to improve national health so that people will be ready for the heavy tasks of postwar reconstruction.

This suggests the need of incorporating into every community program plans for school lunches, supervision of meals in day nurseries for children of mothers in industry, and especially protection for the girl working longer hours in war industry.

Above all, there is the challenge to create in every community an attitude of mind that can never again take for granted the conditions that resulted in the malnutrition of the depression era.

Wartime Developments in Textiles and Clothing

M. EARL HEARD

Mr. Heard has been dean of the Philadelphia Textile Institute of the Philadelphia Museum of Art since June 1940. At the end of this talk, given June 23, he announced that the Institute was offering to AHEA members two full tuition scholarships.

TO OBTAIN information to bring to you today, I have checked with many sources, probably the most important of which have been the trade associations.

Cotton-Textile Industry

Approximately 50 per cent of the productive equipment of the cotton-textile industry is now employed on defense orders, including, of course, the bag fabrics needed to wrap and pack the nation's farm products. Orders now being prepared to assure military and essential civilian supplies will require 38.1 per cent of the total output of the weaving mills, which will bring the defense percentage up to 88.37 per cent.

Mr. Walton of the textile section of the WPB has stated,

> It is now planned to expand production schedules to secure a much larger yardage. These plans contemplate fabrics with minimum picks and made whenever possible full width of the looms to secure more yardage. It is hoped under such a plan the industry can reach a fourteen billion square yard rate for 1942 and at least fifteen billion yards for 1943.
>
> WPB has already issued orders which limit the yardage per garment in men's and women's clothes, which should save much yardage. Other such orders are contemplated where yardage can be saved per unit.
>
> By cutting out luxury items and nonessentials, and by securing the increased production mentioned above, it is hoped that the level of essential civilian consumption can be maintained on a basis equal to the 1939 level.

Since there is an ample supply of raw cotton at present, it is planned to produce certain types of cotton fabrics for bagging, wrapping, sand bags, camouflage, etc., in woolen mills, carpet mills, and such plants to help take care of the entire program, and if possible to save a sizable quantity for a military stock pile.

Further, samples have been made from cotton yarn spun on woolen machinery and woven in carpet mills. Still other samples have been woven in upholstery mills. These fabrics are all usable for special purposes and in an emergency can be very useful in the war effort. A number of carpet mills are already making cotton ducks and still more are converting to it.

The reason for this development is obvious since we have an ample supply of raw cotton but have shortages of fibers in other sections of the industry. There is machinery available for spinning more of the raw cotton and, since we feel that all of this production will be needed, plans are already under way under the direction of our Conversion Section to complete this additional program.

As you will note from the above, steps have already been taken to assure supplies of "civilian necessities." These, of course, include work and street clothing, underwear, sheets, and other items required for the maintenance of health and morale. It is probable that shortages of various types of cotton goods may develop, but substitutes are likely to be found in other divisions of the industry. Combed goods, for instance, are likely to be scarce because of the diversion of large quantities of combed yarn into the manufacture of Army materials, but there should be ample supplies of carded substitutes to go around.

No Over-all Shortage

Army buying, of course, has taken enormous

quantities of cotton goods out of the market, but any relaxation of this buying is likely to be followed by an immediate increase in supplies of civilian materials. With other mills being diverted to the production of cotton textiles, an over-all shortage of cottons is highly unlikely. Cotton supplies are more than ample; machinery is operating at the highest rate in history; retail inventories of certain types of goods are larger than they were a year ago; and there is little prospect of rationing. In addition, cotton is being used to expand supplies of other fibers. For instance, it is being used in the foot and top of hosiery and in mixtures with other fibers such as spun rayon and wool.

Forecast: Staples

In cotton goods, as in rayon and wool, staples represent by far the major part of the business, with novelties in fashion items in the minority; certainly for the duration, novelties in fashion items will be a very small minority indeed.

Some of the future possibilities in cotton items are piques, woven chambrays with some printed effects, and also chambrays in the half-tone shades, some woven ginghams, and possibly glazed chintz. With regard to any fabrics that use fine combed yarns, almost the entire combed yarn industry is supplying government needs, and we may as well forget combed yarn fabrics for the duration. We shall undoubtedly continue to have some cotton corduroys, velveteens, cotton gabardines, and Bedford cord but in more limited quantities than we had last year.

The Carpet Industry

Most carpet manufacturers have turned over a portion of their plants for the production of cotton duck, principally for the armed services and for making woolen blankets for the Army, a conversion which is still in progress. The larger machine shops of the carpet mills are almost 100 per cent engaged in the manufacture of munition items.

Wool for the manufacture of carpets has been limited to certain coarser types good for floor coverings. The mills may use 25 per cent of their last year's amount plus some rayon yarn which slightly increases the percentage.

Inventories in the hands of the retailers are very high; consequently, consumers should have plenty of carpets and wide selections for the rest of the year. These, augmented by the newly manufactured floor coverings, will run the supply over into the next year though in diminishing quantities.

The jute which was used for the back of many carpets has been gradually running out on account of the government's needing to build up a stock pile for defense purposes because of the difficulties of shipping supplies from Calcutta, India. Jute is being replaced by cotton yarns, by some fibers from South and Central America, and by some paper yarns.

The June 2 order relaxed some of the restrictions in the wool conservation order M73 and removed the complete prohibition against the use of wool in floor coverings, draperies, and upholstery for nonmilitary use. This later order permits the use of the following wools in the manufacture of drapery and upholstery fabrics: coarse carpet wool, mohair, skin alpaca, coarse alpaca fleece, alpaca seconds, huarizo, llama, coarse pieces or locks of alpaca or llama. It also permits the use of coarse carpet wools in the manufacture of floor coverings.

The manufacturer is permitted to use such wools in the production of floor coverings, draperies, and upholstery fabrics up to 25 per cent of his rate of use for such purposes during the first half of 1941. The order requires further that acetate staple fiber be made available to manufacturers for blending with wool. Formerly, only viscose staple fiber had to be set aside for such purposes.

Wool and Worsted Industry

With one or two exceptions the woolen industry has produced for the military branches, such as the Army, Navy, and

Marine Corps, all the supplies of woolen and worsted cloth and blankets which they have required. Deliveries scheduled in 1940 were relatively small. The schedules for 1941 called for the delivery of three times as much material as was delivered in 1940. The deliveries already scheduled for 1942 are again twice those of 1941.

The combined total yardage figures for worsteds, woolens, and blankets are for 1940 about 30,000,000 yards, for 1941 about 93,500,000 yards, and for 1942 about 202,000,000 yards. This truly stupendous yardage to be delivered in 1942 represents about three-quarters of a million yards of fabric for every working day of the year.

The industry, as a whole, is today actually ahead of the scheduled deliveries and is very proud of this record, particularly because at the same time it was able to deliver a reasonable quantity of goods for civilian consumption.

About 65 per cent of the productive capacity of the industry today is estimated to be on government fabrics. Nevertheless, we believe that the industry will be able to provide civilians with warm, strong fabrics, even though some of them may contain a percentage of substitute material.

New Fiber and Yarn Blends

The textile industry has probably moved ahead ten to fifteen years in blending, due to the exigencies of war, and soon we will see fabrics with various mixtures on the market. New terms, such as noil, roving, garnett, with various types of rayon, cotton, aralac, and re-used and reprocessed wool, will be the order of the day.

More than ever before, the integrity and good name of the manufacturer will have to stand behind the fabrics that he is making for the consumer. The fiber blends and yarn blends used in fabrics will be so varied that consumer confusion may arise unless a very careful and thoughtful educational job is done. Retail sales clerk education as well as consumer education on performance is going to be needed more than ever. Consumers buying in the scarcity economy that has only just started will demand more information as to fabric content, fabric use, care and maintenance, and serviceability.

Dual Purpose Fabrics

It is perfectly apparent that with fewer fabrics available and with all lines being reduced as far as the scope is concerned, the fabrics available will of necessity have to cater to more than one field.

This may mean, in all probability, that women's wear in general will become slightly heavier and some men's wear fabrics slightly lighter in order that they may be interchangeable.

In general, we are going to have a line of fabrics that will resemble very closely those offered last year. However, they are going to be fewer in number; you may not have the complete color range that you had last year; but what we have will represent the very best efforts of the individual manufacturer to produce something that he can place on the market with his name behind it.

Hosiery

The hosiery industry in 1941 set an all-time record, 149,964,435 dozen pairs, due to substantial increases in the manufacture of all types of men's hosiery and children's or infants' anklets. Other types of hosiery, such as women's seamless and full-fashioned, were slightly below previous high records.

The embargo on raw silk imports and the freezing of raw silk stocks went into effect on July 28, 1941, but no restraint was placed on the use of silk yarns. Shortly after these actions, however, we recommended and the industry generally pursued a policy of discontinuing the manufacture of all-silk constructions.

On similar recommendation, the industry also proceeded to convert at least half of its nylon yarns into part-nylon constructions—a type of construction which had not been offered previously. By these actions the

number of units constructed of silk and nylon in the leg portion was materially increased.

In spite of the mentioned embargo and freezing of raw silk, 73 per cent of all constructions in 1941 were mainly of silk and another 22 per cent mainly of nylon; thus 95 per cent of the units of women's full-fashioned hosiery produced in 1941 were silk or nylon.

Both of these fibers have now been withdrawn from our use for war purposes, and the supplies of yarns have been practically exhausted. This statement will show the major problem which faced the manufacturer of women's full-fashioned hosiery.

The women's seamless branch of the industry was the next most important in the use of silk. Of its 1941 production 28 per cent consisted of silk constructions.

The American hosiery industry prior to the war was the largest single user of raw silk in the world. Our annual consumption represented 93 per cent of the imports into this country, and this was equivalent to 56 per cent of the total raw silk produced in the world.

Rayon Hosiery

The government allocated a portion of the output of rayon yarns to the hosiery industry to assist it in the shortages which it faced as the result of the withdrawal of silk and nylon. Such allocation increased between August 1941 and April 1942 from 7 per cent to 15 per cent, and in terms of pounds amounts today to about 44,000,000 pounds per year.

These reserved yarns are being allotted pound for pound against the average total poundage of silk and nylon consumed by our manufacturers during the first six months of 1941. Our use of "free" (as distinguished from "reserved") rayon yarns makes our present takings about 60,000,000 pounds a year.

A rayon stocking requires a higher poundage than a silk or nylon stocking. The rayon yarns now available to us permit our plants to operate at about 60 per cent of normal capacity.

In July 1941 only a fraction of one per cent of women's full-fashioned production was rayon, while in April 1942, 62.7 per cent of the total production of such hosiery was rayon. Within the same span of only nine months women's seamless rayon hosiery rose from 40 per cent to 57.2 per cent of such hosiery.

Forecast

By applying the yarn-twisting skill acquired by the industry in recent years, as well as all other ingenuity, the industry is producing today a fine rayon hosiery product somewhat to its own surprise and that of the rayon yarn producer. As time goes on these constructions will improve rapidly through experience and competition.

Because rayon stretches more than silk or nylon our manufacturers are making their rayon stockings slightly shorter in order that the same comfort may be found by the consumer. The rayon stocking needs as much care in use and laundering as do the other two types. It is especially important to make sure that a rayon stocking is thoroughly dry before it is worn.

Growing shortages in cotton yarns, particularly combed and mercerized yarns, are beginning to create problems for other branches of the industry all of which will doubtless be compelled to reduce their rate of production. The year 1942 should show a considerable reduction in total production of all types, thus bringing problems to the consumer as well as to the producer and distributor. The cautioning word to all is to take good care of the product and thus extend its use.

Finishing

Resins are on the whole more available than are fabrics. There seems to be sufficient resin for giving anti-crease or crush-resistant finishes to the dwindling supply of rayons and spun rayons. Acrylic ester resins are available in limited amounts, but their scarcity is

growing because of the heavy defense demands. Much work is being done with the resins to replace rubber in raincoat fabrics and in other similar materials. Vinyl chloride resins have been used in large quantities, but they are also in heavy demand as insulation fabrics for cable and wire coating.

Any resins that are being used as substitutes for rubber are in heavy demand, and there are not nearly enough products of this type to take care of the needs. Except for this use as a substitute for rubber, there appears to be sufficient resin available to take care of the finishing of whatever fabrics are available.

Rayon

We shall probably see some shortage of acetate rayon due to chemical needs in war production. Greater quantities of finer yarns are being produced so as to give acetates a greater yardage spread, and all available spindles are probably still operating. This situation may soon change as the acetate process is probably more vulnerable to war needs than are other types of rayons.

As to the viscose and cuprammonium process in continued filament yarn, 17 per cent of the production is allocated to the hosiery industry, and 4 per cent to export. The remainder of the filament yarns, of course, go into pigment taffetas in the weaving industry, to knitted underwear, knitted outerwear, women's dress fabrics, crepes, marquisettes, linings, ribbons, braids, and the like. The 17 per cent allocated to hosiery is going to make serious inroads into the amount available for customary usage of this yarn.

The high-tenacity rayons are playing an important part in the war effort: in such products as tires for the military service, in fragmentation bomb parachutes, material for parachutes, self-sealing gas tanks, insignia, insulation. Production of these yarns is expanding.

Roughly, from 20 to 30 per cent of the total production of rayon staple fiber, approximately 122 million pounds annually, was recently taken away from the cotton industry and allocated to the worsted industry to help spread out the use of wool. The woolen side of the industry is using this rayon staple fiber in carpets, blankets, and some men's wear; the worsted industry, for men's wear and women's wear. Quite naturally this shift of the available rayon staple will mean fewer cotton-rayon fabrics of the type that we have been accustomed to. One significant fabric trend seems to be an accent on the heavier slack or suit-weight utility cloths. An authority in a New York market believes that among staple items in 1943 will be gabardines, the twill range in cavalry cord, whipcord, men's wear suitings (adaptable to women's wear), flannels, coverts, casual tweed-type spun rayon fabrics. There will certainly be new developments as the ingenuity of the designers and manufacturers is called into play.

Co-operative War Efforts

A splendid example of co-operative effort in the textile industry is that shown by the silk and rayon weavers through their National Federation of Textiles—in bringing the mills together to produce war supplies: flare parachutes, human parachutes of nylon, lightweight rayon fabrics for sleeping bags, tow-targets for gunnery practice, small parachutes for weather-recording apparatus, rayon banner cloth, and many other specialty items. The industry is also experimenting with substitutes for silk powder-bag cloth of specially treated rayons.

Another instance of splendid co-operation was that of the duck manufacturers with the carpet and upholstery industry. They gladly permitted members of the carpet and upholstery trade to visit their mills in an effort to obtain the necessary information for conversion.

The textile industry had some excess capacity, but the load it has accepted to provide clothing and equipage for the armed forces, for lend-lease, and for our civilian economy is a tremendous one. I do not know of a single new plant being constructed; yet the job that has been accomplished is simply amazing.

Dyestuffs

The dyestuff industry has plenty of available productive capacity to take care of both war and civilian needs. There will probably be just about enough of cold dyeing vat colors available to take care of war requirements, and little or none left over for work clothes. For this latter need, there will, however, be available a good supply of other types of sulfur dyes and vats. The supply of fast dyestuffs should be ample for such woolen goods as can be used for men's and women's wear. For the cotton and artificial fiber fabrics, there should also be an ample supply of the fast colors, such as vat naphthols.

So far the War Production Board has had the sound and liberal policy of allocating small quantities of critical raw materials for substantial amounts of the better dyestuffs, and these in turn will make what garments are available last longer.

If the cold dyeing vats are needed for our boys in the services, we can get along with our highly improved sulfur dyes for some of our civilian needs. Sulfur colors have some fine properties. We are certainly going to have dyestuffs to dye all of the fabrics available for civilian use and very good dyestuffs at that.

Summary

There is no cause for fear as to the fabrics and the garments of the future. Textile scientists and manufacturers have learned how to make the best possible use of new combinations of fibers and will offer to the consumer products that will represent the best combined efforts of the entire textile industry.

American designers already have converted wartime limitations to good use and have come out with women's apparel that is as fashionable as ever so that no consumer will feel ashamed to wear the new creations.

Textile Education

The textile industry is the only industry, as far as I am aware, that has developed schools to train men for its own field. The USA has only 10 textile schools: five in the East and five in the South.

The Philadelphia Textile Institute grounds the student in fundamentals—English, mathematics, physics, chemistry, mechanics, and raw materials—so that no matter what his problem may be later he can always go back to basic facts.

Young women are in great demand in all phases of the textile industry today. Hence we have laid out for them a two-year program in the fundamental courses in textiles. For the first year (which might be taken alone, if the teacher had no more time) we have listed courses in weave formation, fabric analysis, color harmony, raw materials of the textile industry, hand weaving, cotton yarn manufacture, wool yarn manufacture, worsted yarn manufacture, technology of textile fibers, fundamental courses in jacquard design, microscopy, knitting, principles of dyeing, and physical testing. In the second year, we have laid out a second course in weave formation and fabric analysis, jacquard design, color (pertaining to pattern work), plain and dobby weaving, physical testing, rayon blending, advanced dyeing, and finishing.

These courses are merely suggestive, offered to help home economists improve the work offered in textiles. We would be happy to see the AHEA appoint a committee to study the matter.—Remarks by DEAN M. EARL HEARD at Boston, June 23.

The Contribution of Home Economists to Textile Research

RUTH O'BRIEN

Miss O'Brien is chief of the division of textiles and clothing in the U. S. Bureau of Home Economics and chairman of the subcommittee on household and garment fabrics of the American Society for Testing Materials. Because of Bureau work on mildew-resistant finishes she is consulted almost daily by the War Production Board and other agencies. She has greatly aided development of standards for consumer goods, based on research.

OF COURSE you have heard of the silk-petticoat study. A high light of the AHEA, back in the early twenties, it has perhaps caused more good-natured laughs down through the years than any other project the Association ever undertook. Laughs, not at it, but with it and all its vicissitudes; laughs because almost before it was finished, petticoats began to fade away to mere shadows of their former selves.

If you are historically minded, you have read how the hard-working committee members had yards and yards of changeable blue and gold taffeta made to specification, each piece containing a different percentage of metallic weighting—the cost advanced from their own pocketbooks, by the way, such was their devotion to science. This silk was made into much-beruffled petticoats of the mighty circumferences and many gores then in fashion.

Enthusiastic co-operators bought the petticoats, wore them on all occasions, and diligently kept records of how long they rustled through classrooms and down church aisles. Scroop was the thing in those days, and those petticoats had it. The object of all this was to show how metallic weighting affected the durability of silk.

Yes, the petticoat study does seem a bit old-fashioned now . . . and funny. But it wasn't so funny after all, and I mention it here because it set a very good general pattern—a "foundation pattern," if you will, for much of the textile research home economists have done since.

Silk Weighting Challenged

In the first place, it grew out of a real consumer problem of its day. The metallic weighting of silk had been carried to such extremes that fabrics split after only a few wearings. Excessive weighting was a flagrant adulteration of a beautiful product. Something had to be done about it.

Granted that any piece of research which advances human knowledge is worth while, whether or not it is immediately applicable to practical everyday affairs, still, as home economics research workers, do we not have a special responsibility to recognize current problems of homemakers and focus our efforts on solving them?

The petticoat test did just that. In its time, there was no legislation governing textile labeling; there were no standards for textiles. The first trade practice conference on textile labeling sponsored by the Federal Trade Commission was yet to be called. And when it did come, it was on the labeling of silk, and silk weighting was the real issue.

It is impossible to say just how much the pressure from home economists had to do with this action of the Commission, but undoubtedly a great deal. The AHEA had become very much concerned, and by that time very articulate on this matter of silk weighting—all stemming back to the interest

aroused by the division of textiles and clothing of the Association and its petticoat test.

In fact, I recall very vividly that, at this hearing, the only factual material that could be produced in regard to silk weighting came from home economists—from Pennsylvania State College, largely, which had gone on into an intensive series of studies on the subject. Time and time again, as the arguments waxed strong and hot, evidence supported by laboratory data came from the gallant fighter from Penn State.

And out of it all emerged the first Federal Trade Commission rule on textiles. This specified that a fabric could not be labeled "silk" without the qualifying word "weighted" if it contained more than 10 per cent of materials other than silk. There we had the first informative textile label! The petticoat test had contributed to the establishment of a textile milestone.

Serviceability Studies

It should also be noted that the petticoat test was one of the first serviceability studies ever made on textiles in this country. The skirts were put into actual use, and their resistance to wear was recorded.

Now, unless you have ever attempted to direct a serviceability test, you cannot know the agonies thereof. It is one thing to have your experiment safely confined in a test tube where you can keep your eye on it. But it is quite another thing to have that experiment running around on human beings and subject to all their accidents and frailties.

Yes, serviceability studies are a lot of hard work. They are also expensive and time-consuming. But they are very much needed. Only through them will we ever learn the relative merits of different fibers, fabric constructions, and finishes in actual use. Only through them can we evaluate laboratory tests on textiles and thus at some future day be able to take a short cut to the answer on fabric value in use.

And home economists have certainly led the way in this type of textile investigation. Search the literature and you will find that almost all the studies of this kind have come from home economics laboratories. In 1941 some 30 fabric serviceability studies were under way in home economics departments. And the petticoat study was the pioneer.

Fabrics Made to Order

Then, too, did you notice that the skirts used in the test were made from fabrics especially manufactured for the study, so that their composition and construction were definitely known? Knowing what you are working with is as essential in textiles as in any other type of research. And yet that is one of the most troublesome of our stumbling blocks.

Most of us have no mill facilities, and it is very difficult to find plants willing to make experimental fabrics for us under accurately controlled conditions. And yet home economists have done just this. South Dakota, Minnesota, Iowa, and others have reported projects in which this obstacle was conquered. It was an achievement in the day of the petticoat test; it is still one.

Co-operative Projects

Then, too, the petticoat study was a co-operative project—one of the first home economists ever undertook. Here, too, it demonstrated something worth while, and its example did not pass unnoticed. The wool studies with which home economists in Minnesota and South Dakota are co-operating, the Northeastern Experiment Stations' project on the serviceability of dress materials on which seven states are working, the children's measurement study for pattern and garment sizing in which sixteen home economics departments and the Bureau of Home Economics co-operated, and the women's measurement study, also for pattern and garment sizing, with which seven departments united their efforts with the Bureau's—all these have proved that textile people can work together.

Cause for Pride

Yes, here in the family circle, we can acknowledge that we haven't done so badly. Even a cursory glance through the annual compilations of graduate studies and research in home economics which the research department of the AHEA helps issue each year gives us textile people cause for pride.

Studies on fabric construction, fabric finishing, costume design, clothing selection, fabric serviceability, consumer education in textiles and clothing, textile specifications, the cleaning of textiles, control of mildew, fiber and fabric analysis, the effect of microorganisms on textiles, testing methods—all of these subjects are represented. From Texas to Washington, Indiana, Wisconsin, Alabama, and Missouri; California, New York, Montana, Oklahoma, Virginia, Kansas, Tennessee, Rhode Island, and Illinois—on down the list, practically every state is represented.

Yes, home economists are making their contribution to textile research, some under great handicaps of space, equipment, and money. But they are carrying on—still working (may we mix our metaphors a little?) in the field plowed in the early days by the silk-petticoat test.

Evaluating the Serviceability of Fabrics

Laboratory tests for predicting the length of wear of fabrics are unsatisfactory since not all of the conditions met in actual use can be duplicated in a laboratory. Serviceability studies have been evolved to meet this inadequacy.

No standard techniques have been adopted for making these serviceability investigations, but certain recommendations can be made. A sufficiently large number of articles made from each quality of test material should be taken so that enough are worn out to determine length of service with an accuracy of at least 10 per cent in nine out of ten trials. Allowance should be made for laboratory test samples, as well as for unavoidable accidents, the loss of articles, and the failure of co-operators to complete the test.

Another recommendation is to control as many variables as possible. One variable can be controlled by adopting a uniform style of garment construction for all the fabrics being compared; another by using the same laundry or dry-cleaning establishment; and a third by specifying the length of time the article is to be used between cleansings. Further uniformity can be obtained by choosing co-operators in one occupational group in one geographical location and by establishing a standard for the time of discard of the test article.

It is further recommended that whatever construction is chosen for garments should be an accepted one for that type of clothing and that the cleansing procedure be appropriate. Usually any study should be planned so that it can be completed in a relatively short time. When serviceability studies are conducted in institutions, it is important not to upset the established routine.

Serviceability studies have been used for such purposes as showing which of the standard test procedures must be modified to correlate more closely with service, relating fiber quality to fabric quality, comparing the qualities of textiles offered on the market, and for showing needed improvements in cloth. —Abstract of paper by RUTH ELMQUIST ROGERS and MARGARET B. HAYS, U. S. Bureau of Home Economics.

Community Action to Meet Family Needs

MURIEL W. BROWN

Dr. Brown has been consultant in family life education in the Home Economics Education Service of the U. S. Office of Education since March 1940. Before that she was specialist in family life education for the Tulsa Public Schools and the University of Tulsa. Last June she was appointed co-chairman of AHEA's reorganized Division of Family Relations and Child Development.

IN THE beginning it was just a course in a high school program, a course in cooking, perhaps, or sewing.

In the beginning it was this . . . and it was also a sure and burning conviction in the minds of a handful of men and women who believed that education for family living would one day be a fundamental learning experience in our culture.

Today, as never before, it is important that family life should make its greatest possible contribution to the growth and development of individual human beings and of communities. As these words are written, the air raid sirens are wailing through the streets of Boston, frantic discordances to remind us of the peril we are in.

The Postwar World

Dangerous as the present situation is, however, it holds no greater threat than the mechanical perfection of the postwar world that industry is "imagineering" for us. Science, we are told in a recent General Electric advertisement, is being put to work for the American people:

> Out beyond the reaches of a man's sight is a vast world, dwelling place of a hundred million universes. Infinitely small is another world, the realm of the electron.
>
> By harnessing the energy of this infinitesimal particle of matter, science is extending to undreamed limits the power of the human brain and senses!
>
> By electronics the botanist now can hear a blade of grass growing. Ships can "see" through the densest fog. The surgeon can examine the submicroscopic structure of the body tissue. The astronomer can count the stars a million light years away.
>
> There is simply no limit to the possibilities of this fascinating new science in the fields of industry, television and radio, medicine and public health.

If this is all, if with the power to be released come no new insights, no greater skill in living than we possess today, we might better not survive these terrible years. For the years to come will be more dreadful than the years we have seen.

Solutions for problems as complex and difficult as the problems of social reconstruction are not achieved by violence or bargaining. They must develop, evolve, and cannot do so until the lives of large numbers of people, in all parts of the world, are governed by deeply spiritual purposes accurately expressed in behavior. To produce men and women who are able to plan splendidly, think clearly, feel compassionately, and act nobly is the business of education, in the broadest sense of the word.

Aims of Family Life Education

The first and most important of all the agencies that contribute to the education of a human being is, of course, his family. The aim of family life education, therefore, is to help families to achieve the kind of family living which, to paraphrase Louis Adamic, teaches man to be "strong, rich, secure in his appreciations, sane in his values, intelligent in his knowledge, firm in his morality, just and generous in his freedom, cool and deliberate in combat with the enemies of his ideals and principles, great in the enduring hunger and the epic reach of his spirit."

Because family experience is so often conditioned by social forces, by community situations and attitudes over which individual families have little control, communities as well as families must learn how to understand and meet family needs. Since communities as well as individuals learn best by doing, most community programs of education for home and family living develop on a project basis, insight coming as people work together on matters of common concern.

Our National Program

The problems of greatest concern to most of us at present are problems growing out of the impact of the war on family life. Because of the haste with which it has been necessary to work we have tried to do first things first, meeting situations as they have arisen with all of the knowledge and all of the skills at our command. Out of this intense initial effort is coming a national program for unified action with reference to certain specific goals.

Eight major war objectives are now clearly before us: to produce enough food to meet the needs of our own people, our allies, and starving peoples in conquered countries which can still be reached; to produce the needed war materiel; to give adequate protection to our civilian population; to maintain basic community services; to maintain community programs vital to the physical and mental health of the people; to prevent economic disorganization and to protect consumers from unnecessary deprivation; to conserve all resources—human, material, and spiritual; and to mobilize all human resources and skills for both the war and the peace.

This is our national agenda.

Community Action

How any of these goals will be reached in a given community will depend on many factors in each local situation and on the willingness of each community to recognize and deal with these.

Wherever people are thinking seriously about the responsibilities of communities in a world at war, they are considering, with grave concern, the wartime problems of families.

It is thrilling, heart-warming, to see how well communities throughout the country are taking hold of these responsibilities. Of special interest because of their experimental nature are the four programs in family life education launched in the fall of 1938 with the help of the United States Office of Education.

These programs are located in Toledo, Ohio; Wichita, Kansas; Obion County, Tennessee; and Box Elder County, Utah. War has come to each of these communities as it has come to the rest of America, and each of the family life programs is meeting the challenge in its own way. The only common element in the developments which have so far taken place in these four centers is the existence in each of a central planning group which serves as a clearinghouse for the coordination of activities. The four experiments must, therefore, be reported separately.

Toledo's Program

The Toledo program now literally speaks for itself in an attractive pamphlet prepared this spring for community distribution. Its function, according to this leaflet, is "to coordinate the programs of educational, religious, and social agencies, and to stimulate new developments in the field of education for home and family living."

"The purpose of this program is to offer to all age levels and all community groups opportunities for further understanding the personal relationships and arts of homemaking that make for wholesome family life."

The Director's Work

The major services or projects reported for this past year have been carefully planned to meet outstanding needs. Under the leadership of the public school director of parent education, a special effort has been made to help parents interpret the war to children. Members of a class of lay leaders in training prepared a sheet of brief, practical suggestions,

entitled "Children and Parents in Wartime," which is having a wide circulation.

The director of preschool education has played an active part in all recent local developments in the preschool field. Under her supervision, high school boys and girls studying child development in the Toledo high schools observe and assist in WPA nursery schools. She helped organize the Toledo Preschool Council and is carrying major responsibility for a training course for volunteers in child care under the Office of Civilian Defense, a course organized co-operatively by the Toledo Council of Social Agencies and the Toledo Preschool Council.

Nutrition Classes

The Toledo Family Life Education Program is, of course, concerned about nutrition education and is working closely with the local defense nutrition committee. The Program and the health section of the Council of Social Agencies have a joint standing committee on nutrition which has been active throughout the year.

Under the direction of this committee, volunteers with previous training in home economics were recruited, "refreshed," and assigned to lead classes for mothers and others interested. These classes have been held throughout the city with the co-operation of the schools, Parent-Teacher Associations, and the Office of Civilian Defense.

Institutes, Workshops

One of the more dramatic of the many services rendered the community by the Toledo Family Life Education Program was the two-day Institute in Family Relations carried through co-operatively by 68 Toledo organizations in March 1941. Seven nationally known leaders in family life education were brought to the city to take part in the program. Registrants at the various sessions totaled 1,891.

The Preschool Council sponsored a Preschool Institute which met once a week for seven weeks in the spring of 1941 and was well attended. In March of this year 33 Toledo organizations arranged a closed workshop in premarriage education at the request of a group of professional workers—ministers, high school deans, nurses, teachers, and social workers. A standing committee to plan activities and programs of study for groups interested in education for marriage has been recently organized and is available for consultation. The Public Library has prepared lists of books in this field, and pamphlet material is for sale at the Office of Family Life Education.

Other Activities

Other activities undertaken by the program are interesting and varied. Each year the Family Life Education Council holds joint meetings with one or more community groups at which speakers discuss timely subjects in the field of family life education. A program-planning bulletin listing persons who will speak on topics in this area is prepared each year for club and group chairmen throughout the city. Program series for club groups may be arranged through the Family Life Education Program. Bibliographies of new material in the fields of child guidance, parent-child relationships, marriage, preschool education, and nutrition are available in the Family Life Education Office or will be prepared upon request.

Shortly after the attack on Pearl Harbor, the co-ordinator of the Toledo program wrote, "Our entrance into the war on December 8 heightened everyone's feeling of need to be of service to the nation in whatever way he can be most valuable." It is obvious that the Toledo Family Life Education Program is finding ways that count tremendously.

The Obion County Program

Full of significance to those who have watched it grow, is the "grass roots" program in Obion County, Tennessee. Without special financial assistance of any kind, this planning council has led the people of the county from one fine project to another under

the co-chairmanship of the county health nurse and the director of curriculum for the county schools. Time and energy for the past year and a half have gone for the most part into a community program of nutrition education which has been outstandingly successful.

Making Nutrition Personal

In order to make nutrition "personal" to parents throughout the county, the nutrition committee organized a series of nutrition roundups, one for each consolidated school district. These were set up in the following manner: (1) The county health officer furnished each teacher with a list of suggestions which would help her to detect possible malnutrition in children in her room. (2) Teachers listed these children and called at each home to discuss possible causes and invite each parent to come to the school to confer with the doctor. (3) The doctor examined each child on the teachers' lists who came accompanied by a parent. (4) Each parent who came to one of these clinics discussed her family food problems with the doctor, the county health nurse, and the home economics teacher who helped to work out individual family food plans.

The first clinic was held in January 1941. Since then, more than a thousand children have been studied, and the following things have happened, or are happening, as a result of the needs revealed and the widespread public interest aroused: (1) The teaching of nutrition has been made an integral part of the elementary school program throughout the county. (2) Special medical care has been provided for children and families found to be in need of such assistance. (3) A county council of social agencies has been organized to facilitate co-operation among agencies in the local welfare program. (4) The Red Cross has arranged to assist families in need of emergency aid. (5) High school boys and girls are giving routine assistance in the county health program—weighing and measuring school children, keeping records. (6) Merchants have stocked whole-grain and enriched bread, flour, and cereals. (7) The local newspaper has devoted a generous amount of space to articles on the subject. (8) Nutrition has become a topic of conversation and a matter of importance throughout the county.

This entire program has been directed by a subcommittee of the Family Life Education Program made up of representatives of all local agencies and organizations concerned with nutrition, plus an equal number of plain citizens. This fall, this same steering committee decided to try to organize small neighborhood study groups that would help as many county families as possible with food problems.

Community meetings were held to create interest in these nutrition groups. Local men and women with some experience in group work—Sunday school teachers, community club chairmen, and the like—volunteered as leaders, and were trained, more or less according to their own specifications, by teachers of home economics and agriculture.

Reports of these nutrition groups make absorbing reading. To quote one letter:

> The town of Obion has had two meetings, and the groups are asking that the classes be continued longer than was planned, which was five classes. . . . At the first meeting they discussed milk and milk products. Twenty adults came to this meeting in subzero weather with a six-inch snow on the ground. . . .
>
> The next week they had 27 adults and 16 children between the ages of 8 and 16. They discussed gardens and preservation of vegetables and fruits. In this meeting the people participated in the discussion of preparing soil for gardens, seeds, variety of foods raised, canning, drying, and storing of foods. Also at this meeting the group decided they would pool their funds for seeds and buy these from a certified seed company.
>
> They pledged themselves to do their utmost to see that every family in Obion had a garden. This includes the 19 widows. The third meeting was on eggs and lean meats, and the fourth meeting . . . will be on whole-grain cereals and breads.

Copies of "The Obion County Food Standard," mimeographed on brightly colored paper,

have been placed by the county nutrition committee in co-operation with the civilian defense council in every tourist camp, hotel, and restaurant within the county. "These are the things I need daily," it says. "FOOD FOR VICTORY! WIN THE WAR BY EATING RIGHT." Somehow, you know that this is symbolic. *Whatever* it takes to win the war, Obion will do and Obion will give.

Other Nutrition Activities

Other activities have been launched or supported by the nutrition committee. The school lunch program has been improved. Plans are being made for central baking and canning units sponsored by the Obion County Council of Parent-Teacher Associations.

All agencies are emphasizing year-round gardens; food preservation by canning, storage, and drying; and the need for raising more chickens, beef, sheep, and pork and for producing more dairy products. The county court has adopted the food-stamp plan, and the merchants are directing attention to their supplies of nutritious foods.

Last summer the University of Tennessee and the Tennessee State Department of Health sent two well-known specialists to help county teachers, studying in a local workshop, with problems of nutrition education. This professional guidance has given the entire program a fine security.

The Wichita Program

Early in February of this year, the Wichita Family Life Education Program formally placed at the disposal of the Wichita defense council all of its services and resources to be used "where most needed in the local defense program." Because Wichita is now one of our top-flight boom towns, what the program has been able to do there, as war work has absorbed the lives of residents old and new, is of particular interest.

Nutrition Work

One of the first nutrition committees to be organized anywhere in the country in connection with defense was organized here last spring as a subcommittee of the family life program, with the help of Dean Margaret Justin of Kansas State College, nutrition chairman for the state. When a defense council was set up to take over responsibility for all aspects of the defense program in Wichita, the family life nutrition committee was reorganized, expanded, and recognized as a subcommittee of the department of welfare of the defense council.

The director of the family life program is chairman of the subcommittee on training of the Wichita nutrition council. This group has charge of the training of all local leaders of nutrition study groups. About one thousand women had taken nutrition courses with these leaders before this school year ended. Most of the classes are being organized by the Wichita Council of Parents and Teachers as part of their study program. Leaders with special qualifications are working intensively on food problems with families designated by welfare agencies.

One of the outstanding experiments sponsored by the Wichita nutrition committee is a course in food selection and preparation for the women who board defense workers. The approach to these boardinghouse mothers has been so sincere and so practical that the group has developed a fine esprit de corps. These women now feel that they are doing highly important war work when they look after the health of the men working in the airplane factories. Eagerly they bring their problems and questions, and proudly they report their successes.

Morale-Building Projects

The two self-help centers, South West Community and L'Ouverture (the Negro center), are effective morale-building projects. Eyes brighten and spirits lift as members discover the power there is in co-operation. South West Community is extending its activities to include a recreation program for neighborhood youth which the young people themselves are helping to plan.

The neighborhood council in North Wichita has worked on four projects: a child-care center for the children of mothers who work; a program of home gardens; a week-day Bible School organized co-operatively by the churches and the public schools; and plans for a community Christmas celebration.

Projects like these obviously have a better chance to succeed when a council form of neighborhood organization makes it possible for all families and all agencies concerned to work together from the beginning on the planning than when one person or agency dominates the scene.

The Wichita program is stressing increasingly the importance of family morale. Plans for all second semester study groups in parent education and nutrition sponsored by the Parent-Teacher Association were made in a series of January conferences with principals, study group chairmen, and presidents representing 40 PTA units.

Questions discussed by study groups included the following: How can our scheme of living be simplified to make more time for Red Cross or other defense activities? What are we now doing to keep ourselves fit physically, spiritually, emotionally? What practices in our home life give our children an understanding of how democracy works? What differences should the war make in the lives of our children? Is it true that the home is "the cradle of democracy?"

Summer Activities

Two projects are under way to help families make the best possible use of their summer time. A conference in "education for effective service in home and community" to be held at one of the local universities will be organized and conducted by many co-operating groups.

The second activity, the annual family fun project, got under way as soon as the schools closed. In this project parents and children study and work and play together in a jointly planned and varied program of summer activities.

The Box Elder Program

Box Elder County, Utah, is close enough to the West Coast to share the vivid sense of danger which pervades the Pacific region. Judge J. Wesley Horsley, the first chairman of the central sponsoring committee of the family life education program, is with the Army. The co-ordinator is co-chairman of the state committee on care and training of little children.

Others who have been active on family life projects are helping in many ways with the war. The program itself is stronger than ever and is accepting, as a matter of course, a kind of general responsibility for looking after the interests of families in this emergency.

Work with OCD

At present, the Family Life Education Program does not have an official relation with the county defense council but will act for it in certain areas as needs arise. If defense classes are organized, for example, the family life program will take charge of these through the two adult education subcommittees which have been responsible for the county's adult education program for the past two years.

Local child-care committees have been set up in areas in the state likely to be first affected—Ogden, Salt Lake City, Provo, and Salt Lake County. In each case the state chairman of defense has written to the local defense chairman, stating the problem, describing the work of the state committee, and urging that provision for the care and training of little children be included in the local defense setup.

Such a request will likely come soon to Box Elder, for women from this county are beginning to accept employment in the Ogden area. A survey is now being made to determine the number of families so affected.

Some weeks ago, the executive committee of the Family Life Education Program initiated the organization of a county-wide nutrition committee which has become a subcommittee of the County Planning Board and includes all agencies working in nutrition. It

will deal with wartime food problems, but it also expects to develop a long-range program to meet local nutrition needs.

Two Fruitful Studies

A fascinating little study, undertaken last year by the committee on studies and surveys of the Program to find out how people spend their free time, has been completed. The 467 people who co-operated in this study reported an average of 11¾ hours of free time a week spent at home; 3½ hours in religious activities; three-fourths of an hour with civic organizations; and almost 3 hours with miscellaneous activities.

These findings will be used to remind people that most of us have more time than we think we have and that some of the time we waste can be salvaged for war work.

Another study made by this same community group shows that the objectives of local organizations overlap considerably and that some of the activities of these organizations are not always clearly related to their announced objectives. Facts obtained may assist the groups concerned to co-ordinate their programs for the sake of greater efficiency in the war effort.

Youth Survey, Follow-up

The findings of the youth survey made last year were reported to 39 county organizations by the boys and girls themselves under the direction of the youth committee of the Family Life Education Program. Twenty-five young speakers addressed meetings with a total attendance of 2,165.

To these groups they explained that youth wants more responsibility at home, more experience with money, more vocational guidance, and more community facilities for wholesome recreation after high school graduation. It may be that the changes in ways of living which will inevitably come to Box Elder County and to all other American communities as a result of the war will bring answers to some of these problems fairly soon.

Unwilling to wait so long to begin working toward their own objectives, the Box Elder County youth committee precipitated this spring some family co-operation in which they could be sure of taking part. Clean-Up Week in the county is an annual event. Shortly before it was due a circular was distributed proposing that Clean-Up Week, this year, should be on a family basis. It read:

You probably wonder why [the] campaign for 1942 is being urged on the basis of FAMILY PLANNING. The idea originated with the Youth Committee of the Family Life experiment. This is the group that was responsible for Youth Week last fall. You know, during Youth Week speakers went to many organizations and gave the results of the Box Elder Youth Survey.

One of the outstanding discoveries of that survey was that our Box Elder Youth want more responsibility at home. Through sponsoring a series of activities which are FAMILY PLANNED and FAMILY EXECUTED, the Youth Committee hopes that it can wake families up to the need for giving children more responsibility all along the way. Now you can see that putting the usual spring clean-up campaign on a basis of FAMILY PLANNING is a step in that direction.

Here are some suggestions which explain the idea more fully:

FAMILY PLANNING FOR SPRING CLEAN-UP CAMPAIGN AT HOME MEANS EVERY MEMBER OF THE FAMILY, REGARDLESS OF AGE, HELPING MAKE THE PLANS.

FAMILY EXECUTION OF THOSE PLANS FOR CLEAN-UP CAMPAIGN AT HOME MEANS EVERY MEMBER OF THE FAMILY, REGARDLESS OF AGE, PARTICIPATING.

PLANNING INCLUDES LISTING THE JOBS TO BE DONE IN CONNECTION WITH THE CLEAN-UP AT HOME, AND EACH MEMBER OF THE FAMILY BEING GIVEN THE OPPORTUNITY TO VOLUNTEER WHICH HE WILL DO.

YOUTH DO NOT WISH TO TAKE RESPONSIBILITY FROM PARENTS. THEY MERELY WISH TO SHARE IT AS THEY GO ALONG SO THAT WHEN THEY COME TO THE PLACE THEY WILL NEED TO BE RESPONSIBLE FOR THEIR OWN HOMES, THEY WILL BE BETTER PREPARED FOR IT.

The serious and dignified way in which these proposals were made won sympathetic cooperation. Families reporting participation in the project totaled 580; of these, 411 said they planned their activities as a family group. Family members of all ages found ways of helping, including 15 two-year-olds and 34 three-year-olds.

Other Family Living Programs

In nearly every state in the Union, as we said in the beginning, one or more communities are working on problems of family living. One thinks of the community family life education program developing rapidly and soundly in Omaha, Nebraska, with the capable guidance of the supervisor of home economics for the city public schools.

In Idaho Falls, a Youth Welfare Committee has evolved out of an excellent youth survey sponsored three years ago by the National Youth Administration. North Carolina has family life education programs well under way in Raleigh, Greensboro, and Wilmington. New York, Texas, and other states are experimenting, significantly, with community organization for family life education.

Put this all together and we have—America at work on a new assignment. When we do our best to strengthen, enrich, and protect family life, to help families to help themselves to security and happiness, we are fighting the war for democracy in the first line on the home front.

The little clean-up project in far-away Utah, the homemade nutrition leaflets in the restaurants of Obion County, the self-help center in Wichita, the premarriage workshop in Toledo—these are straws in a wind blowing up—a strong, clean wind that will sweep us, some day, into the brave new world we have dreamed. They are techniques of freedom—techniques which we must learn to use if we really believe that in a democracy people create the conditions under which they wish to live.

The Same Job—With a Flag to Carry

The national nutrition program provided a natural for home service departments of utility companies because of their experience in demonstration, the availability of utility auditoriums, and the home economics training of their staffs. In past years the 1500 directors in the gas companies alone have reached approximately five million women a year. Today through nutrition classes home economists in the utility companies have developed a still wider community coverage for a variety of reasons: greater family interest in nutrition; servantless homes; work in production factories which has affected time available for meal preparation; wartime duties of former clubwomen, who now want nutrition classes so as to qualify for canteen work.

Activity in the home kitchens is growing. Increased food costs, tire shortages causing fewer trips to restaurants and markets, changing food products and allotments, and change in kitchen personnel has brought a big demand for more instruction on equipment and more help to avoid waste of food, time, and fuel. Our booklet "Uncle Sam Wants It to Last" met a nation-wide household need. Another booklet, "Keep 'Em Cooking," prophetic in anticipating freezing orders for equipment, has been helpful to restaurateurs.

Home service women are keenly aware of their obligation. What they are called on to do today is what they have been doing for years, but now they have a flag to carry.—Summary of talk by JESSIE MCQUEEN, American Gas Association.

Nutrition Education for Industrial Workers

CHARLOTTE FERRIS

Miss Ferris is assistant director of the department of defense nutrition and home economics of the Westinghouse Electric and Manufacturing Company, Mansfield, Ohio. She supervises its nutrition program and the classes in the Home Economics Institute, and demonstrates, tests, and develops new uses for appliances.

LAST winter the home economics department of our company decided to do a little research among our Mansfield people to see if it was true that nutritional information was not reaching the home. We began this research by canvassing the grocery stores. Mrs. Julia Kiene, the director of our department, and I went one afternoon to a Super Self Service Market and observed the shopping.

Just ahead of us in the line was a young couple, the man, judging by his clothes and conversation, a skilled shop worker. His wife, a rather anemic-looking individual, held a baby in her arms. During the whole hour that we followed this couple, the baby lay in its mother's arms listlessly—quite contrary to what a normal child would do.

The couple bought freely, not haggling about price, and by the time they reached the cash register, they had purchased $10.76 worth of food. But out of all that food, the only things of real nutritive value were a bunch of celery and half a dozen oranges. Most of the food consisted of cookies, bags of candy, and prepared meals in cans. They had purchased plenty of food but had failed to include an adequate amount of such dietary requirements as vegetables and fruit.

This worker represented the men on whom the country depends to keep war production on a peak basis. He was one of the 17 men needed at home to supply one man on the firing line. And he recalled to our minds the recently published statement that 3,200,000 man days of work are lost each month in defense plants from minor illnesses—enough time to build two heavy cruisers or 448 medium bombers, or 3,200 light tanks.

We checked a little further and made a study of cafeteria lunch trays of our Mansfield shop people. Their diet included meat, potatoes, and pie but was deficient in vegetables, milk, and fruits.

Starting the Campaign

Obviously our nutrition story wasn't reaching our defense workers' homes. Something had to be done. We went to the management of the Mansfield factory with a plan for starting an educational campaign among wives and mothers of war workers in our plant. They agreed to help promote the plan.

We prepared a monthly diet plan of good nutritious food for a family of five with a weekly food budget of about $14 and furnished with these menus the proper recipes. Our recipes took into consideration restrictions on sugar and later other food shortages. The menus included breakfast, lunch, dinner, and also lunch-pail suggestions. We included in our booklet the government guide to good nutrition, rules on how to cook vegetables to retain health-giving ingredients, and the facts showing the necessity of proper refrigeration.

At the close of the first meeting we had the women fill out cards registering them as members of the Health for Victory Club. These cards helped us plan better our future meetings and menus.

It was not only a problem of furnishing menus and distributing them; we had to make the women aware of the need of balanced meals, to help them in planning these health-building meals, as well as to show them how to prepare meals properly with their present kitchen equipment.

We decided that the best way to present this material to the homemaker so that she could easily understand it was through group meetings presenting the educational story as dramatically as possible with colorful charts, movies, and food demonstrations.

The first meeting, held in Mansfield on February 26, was attended by 350 women. These "soldiers in aprons" were aroused to the part they could play in the war by keeping their families physically fit through proper diet and in that way keep production going. Each club member was invited to come in for a private conference to discuss her marketing and meal-planning problems with a member of our department.

The Follow-Up

Sure enough, 90 per cent of the women returned for further advice. They said amazing things. One woman said, "When I saw you cook those potatoes with only a slight bit of water, I thought it was a gag. I thought it couldn't be done in the average home. I resolved to go home and try it, just to prove you were wrong. To my amazement, they turned out perfect. I thought it was a mistake—an accident. So the next evening I did it again. And my husband said, 'You must have changed the variety of potatoes—they're so good'!"

The second meeting held a month later drew 450 people. By this time it looked as though the program was a real success. The Westinghouse management heard of the plan and decided to start it in all 22 Westinghouse plants. It's already operating in a number of them, and as soon as we increase our staff it will be operating in all.

Other defense plants heard of the plan and asked if it could be started in their factories. If our plant needed it, certainly other war plants would also. When it was presented to the utilities, they decided with the aid of their home economists to seize the opportunity to help further the national victory program. So we have provided utilities with monthly packaged material so that they can hold meetings like ours. Our district home service girls help the utility home economist in presenting the meetings.

Now let's take a quick look at this material, which is endorsed by Donald M. Nelson of the War Production Board; M. L. Wilson of the Office of Defense Health and Welfare Services; Dr. Frank G. Boudreau of the National Research Council; Dr. Franklin Bing of the Council on Foods and Nutrition, American Medical Association; and by Melva Bakkie, director of the nutrition service, National Headquarters, American Red Cross.

Dramatizing Nutrition Facts

We use these colorful vitamin charts to arouse the women's interest in good nutrition. To dramatize the value of vitamin C we tell the story of how Captain Cook in 1770 refused to undertake a five-year expedition to the South Sea Islands unless he could stock the ship with fresh fruits and vegetables. The British Navy thought this was a foolish whim of Captain Cook's, but granted his wish. Limes were plentiful, so they were stocked. Captain Cook ordered the sailors to take the juice of a lime a day. They refused until they became critically ill. After five years Captain Cook returned to report no deaths from scurvy. The result of this trip was that the British Navy ordered all sailors to drink the juice of a lime a day while on the sea. This did two things: it wiped out scurvy, and it gave the British sailors the nickname "Limeys."

To illustrate the value of vitamin B, we tell the story of Dr. Eijkman: how in 1890 he noticed that beri-beri was prevalent among natives in Java who lived on a diet of fish and polished rice, but that those who ate unpolished rice did not have the disease. He decided to experiment on chickens in an attempt to find the answer. The Governor of the island, who frequently played chess with the Doctor, also observed the experiment. First the Doctor made healthy chickens sick by feeding them polished rice; then he cured them by feeding them the husks and polishings of the rice. Convinced that the Doctor was

right, the Governor issued an order requiring the natives to eat unpolished rice.

We point out that eating for health never has been voluntary. Even in 1770 and 1890 it required an order from a high official to prevent these illnesses.

We tell the women how Dr. Goldberger injected the blood from a dying patient into his students, his wife, and himself to prove his theory that pellagra wasn't a contagious disease. Then he experimented with prisoners in Georgia to verify his belief that it was the much-loved diet of corn pone and sow belly that caused the disease. Pellagra is licked by a balanced diet.

Rickets, too, was considered a contagious disease until 1919 and 1920, we tell them. Then two doctors proved through experiment with rats and dogs that it is the sun's ultraviolet rays that convert a body element into what has been identified as vitamin D.

These charts listing the foods rich in various vitamins point out to the women that most foods we commonly eat are rich in vitamins. But it's not enough just to know which foods contain vitamins, for vitamins are temperamental. They have three "enemies" which easily and quickly destroy them—water, heat, and air. But we can outwit these enemies. By cooking vegetables before the women, we show them how to preserve vitamins and minerals.

Other Defense Plants Join

The program is worked out for twelve monthly meetings, covering a different subject at each meeting, with a new menu guide-recipe book for each month.

At present 50 defense plants have this program in operation and by the first of September we anticipate that more than 100 defense plants will be using it.

Our Job: To Dispel Worry

We home economists are in key positions to collect information and dispel the worries tormenting the civilian consumer. It is our wartime responsibility to understand conditions and interpret them to others.

One of these worries is the curtailment of textiles and ready-to-wear garments. Yet most stores have huge stocks of all types of merchandise. It is possible today to buy practically anything that one may wish. If, and when, these stocks are used up there will be satisfactory substitutes. Corporations are spending large sums of money in experimentation which will most surely result in improved methods and in new products which may be cheaper and even better than the old.

Many of the problems of business trace to consumers' insistent demand for the old, misunderstandings as to the advantages and uses of the new, discontent with performance due to lack of the new skill needed for handling.

The situation as to dyes is not unbearable! One fabric house known to have had in production 800 to 900 colors will be reduced 50 per cent. Houses which have used as many as 12 colors for a single print pattern will be reduced to a mere four or five. And the effect on the civilian consumer may be that she will be able to match a blue dress with a blue hat!

The role of the home economist is to help a bewildered society understand what is facing it and to provide the training necessary so that the new can be accepted with greater ease and satisfaction. Changes are coming so rapidly in the field of textiles and clothing that the task is no small one, but it is one vital to the nation's morale.—Résumé of talk by ALICE HALEY, director of home economics, Celanese Corporation of America.

The Impact of War on Experiment Station Research in Home Economics

SYBIL L. SMITH

Miss Smith is a member of the staff of the Office of Experiment Stations, United States Department of Agriculture. Since the passage of the Purnell Act in 1925 she has assisted in the administration of federal funds for home economics research in land-grant institutions. She visits the experiment stations periodically and thus keeps in close touch with their work.

THIS report is based upon replies received from research workers or administrators of research in home economics or related fields at the land-grant institutions to whom I had written asking, "What effect has the war had on your research program?"

As might be expected, certain comments appeared in almost identical terms in many of the letters, such as reports of the inroads on research time by extracurricular war activities and the urgent need for making research findings more speedily available in nontechnical language and for expanding and intensifying practical work even at the expense of shelving or slowing down fundamental research.

Most gratifying of all the comments have been those testifying to the appropriateness of past and present research projects to the needs of wartime economy and to a new or greatly increased spirit of co-operation among the various research departments of the experiment stations. Before breaking down the replies concerning specific programs into the various subject-matter fields, I would like to share with you some of the comments of a more general nature.

In Hawaii

It is appropriate to begin with Hawaii, where the impact of war was first felt. In a most optimistic letter, dated May 15, Carey Miller writes:

> In some ways, I feel that we can be thankful that our work has been of such a nature that its importance during wartime is merely accentuated and there was no real necessity for making any changes in our projects in the nutrition department.

As most of you know, Miss Miller has from the start concerned herself with Hawaiian problems, particularly the nutritive value of Hawaiian foods. Consequently, when it became necessary to rely more completely on local foods and requests began to come in from the armed forces as well as civilians for information on the nutritive value of local foods, she was ready.

Commenting on this point she states:

> I am glad that we had done so much on the vitamin C content of papaya, guava, mango, and tomato (local) because the shipping situation is making it almost impossible to ship oranges. Colonel White, director of food control for the Islands, has stated that Hawaii consumed more oranges per capita than any place in the United States. So, people have the feeling that they are being greatly deprived of an important food now that oranges are not available. We have attempted to give even more publicity than in the past to the fact that many of our local foods are as good or even better sources of vitamin C than oranges.

To meet the demand for this information the station issued in April a mimeographed compilation "Vitamin Values of Hawaiian-Grown Fruits and Vegetables," and a popular bulletin entitled "Food for Health in Hawaii" is in press.

Among the foods listed in the circular are the leafy, tender tops of the bitter melon, with a vitamin A value, when cooked, of 20,000 International Units per 100 gm, and the horse-radish tree, with a corresponding value of 35,000 IU. The same material from the horse-radish tree contains 134 mg ascorbic acid per 100 gm in the raw state and 34 mg when cooked.

A final quotation from Miss Miller's letter will be of interest, although it is somewhat of a digression from the subject for discussion:

> The whole food problem here has awakened great interest in food and nutrition.... There have been temporary shortages of some foods like beef and butter, but families accustomed to depending upon milk, eggs, and cheese for a considerable portion of their protein food did not find it a hardship to go without fresh beef for a couple of weeks.... The list of foods which Colonel White has shown me indicates that, except for a few luxuries, we will not have to change the character of our diet in any way, except possibly for the good and consume more fresh vegetables. Home and community gardens are now important local projects.

New Uses for Research Findings

In some instances, the findings in completed projects have lent themselves to a new interpretation or to application along different lines from those anticipated when the project was undertaken.

Dorothy Dickins writes from the Mississippi station that her recently completed comparison of the socioeconomic status of farm-reared women employed in textile mills and garment plants with farm-reared women engaged in farming showed that the levels of living of industrial women and their families were higher than those of farm families where industry and country life were combined. "Interpreted in terms of the present-day situation, this means that decentralization of war industries might make for higher levels of living than a centralization of such industries."

Findings from another completed project of the Mississippi station have acquired new importance. The examination of many foods as sources of available iron, which sugar does not supply, showed that home- or community-prepared sorghum and sugar-cane sirups are valuable sources and are, therefore, among today's best sugar substitutes.

From the South Dakota station comes the comment that their projects seem to have been planned for the present emergency. One of these is preparation of foods for the freezer locker, now particularly important because of restrictions on canning equipment and also because freezer-locker storage is an excellent means of keeping small surpluses from Victory gardens. Freezer-locker studies in other states likewise assume new significance.

Practical Slant to Research Urged

Other letters voice the feeling that the usefulness of many of the present projects might be enhanced by a more practical slant and by making the results available more quickly and in such form that they will appeal to the general public.

Ada Moser of South Carolina, after discussing plans for using most effectively material from recently completed food consumption studies, writes: "We are considering carefully how we may increase the usefulness and public appeal of the reports of projects we are now working with and being open-minded for the future."

Intra-Departmental Co-operation

Increased co-operation among departments is evident as well as in many cases a greater interest on the part of the experiment station directors in research problems of the home. A comment from one of the northwestern states sums this up as follows:

> It has been most interesting to watch a gradual infiltration of the importance of nutrition into the minds of the directors and other station men, as we, of the Western Region, have met at Salt Lake City and recently at Berkeley and Moscow. There seems to be a general feeling that we must quickly put our existing technical knowledge into

operation and be prepared to give practical assistance wherever needed.

Second, the war situation has certainly brought about a more co-operative spirit among the departments within a station and between the various stations. It is really encouraging to hear the directors express so much interest in regional co-operative research and a desire to get things started immediately.

Trends in Research

I would like now to discuss briefly present trends in experiment station research in the various subject-matter fields as illustrating more specifically the impact of war.

Textiles and Clothing

Almost without exception, the comments on present research projects in this field have testified to their intensely practical value in the present emergency. A statement from the Minnesota station illustrates this and also the special need at present for more complete information on textile fabrics:

> None of the textile projects have been changed because they already have "social significance in the war situation." The wool, rayon, and cotton fabrics we have been or are working on are standard materials which are widely used and of even greater importance in wartime. Nearly all of the data on rayon crepes and cotton fabrics already have been sent to the OPA at their request, and further information desired is being prepared. The wool fiber-fabric relationships study we are finishing is more important than ever in view of standardization, labeling, and need for maximum service return. The same could be said for the effect of washing on rayons and its relation to fabric properties. . . . The wearing or service tests on cotton fabrics could be classed as a "war economy" study if it were being started now. These are fabrics used in the service as well as by civilian nurses, and our findings will, in addition, have significance with respect to many other uses by civilians.

From Kansas, Margaret Justin writes that their textile research

> . . will be carried on in much the same way as in previous years, as the study of synthetic fibers and new finishes with which it deals is still of vital interest. Emphasis will be on the serviceability of synthetic and mixed-fiber fabrics as compared to those made of the natural fibers. Study of any new fabrics which may appear will be of particular interest to the workers.

Ideally, research on textile fabrics should start with fibers of known origin and history and follow them through the spinning and weaving into fabrics and then test the fabrics both in the laboratory and in actual wear. Such a project was planned and started by the Texas station, the garments being men's broadcloth shirts, spun and woven by special arrangement at a Texas cotton mill from contrasting types of cotton grown at the experiment station. Work on the project had reached the weaving stage when the rush in the mills occasioned by the war made it impossible to have the weaving done; consequently, the project has been suspended for the duration.

Similar difficulties hamper cotton textile research at the University of Tennessee, but Jessie Harris feels that the war situation will open up many new fields of work such as comparisons of new substitute fabrics with old, studies on care of the new fibers and fabrics, and studies on substitutes in dry-cleaning and laundry agents.

The textile research laboratories at the Ellen H. Richards Institute, Pennsylvania State College, are humming with activity as a result of the impact of war. The long-time co-operative project of six northeastern states on the durability of wool, silk, rayon, and cotton wearing-apparel fabrics and the accuracy of laboratory tests in predicting actual wear of the fabric is being drawn on heavily for data relating to textile fabrics, both for the armed forces and the civilian population. All laboratory tests for this project and the final comparison of the discarded garments with the original material are made at the Pennsylvania laboratories.

Specific illustrations as to wartime uses of data from this project have been given by Pauline Beery Mack. At the request of the

Bureau of Standards an unpublished accelerated aging test developed in connection with the project has been made available to the United States Army. Data have been made available to women's organizations throughout the country on the proper choice and care of the newer substitute fabrics now being made available for civilian use and to commercial laundrymen and dry-cleaners on the performance of such fabrics during laundering and cleaning, either with standard methods or with modifications necessitated by withdrawal from the market of certain detergents formerly used. These might be called by-products of the co-operative project.

Of even greater importance is the use being made of the data from the laboratory tests on the fabrics already studied in conjunction with the examination of the discarded garments. According to Mrs. Mack:

> The data on colorfastness, launderability, and dry-cleanability of the wearing-apparel fabrics of this project (more than 1100 fabrics have now been studied) are serving as the basis for deliberations by the Federal Trade Commission on the establishment of standard legal definitions for such terms as "colorfast," "tub-fast," "launderable," and "dry-cleanable." Consumer organizations have been responsible for the calling of the Federal Trade Commission hearings on this subject. The dependency of the Commission upon our data . . . is demonstrated by the fact that the date for the hearings was delayed until our data could be assembled and prepared for presentation.

Among the other research items submitted by Mrs. Mack on the wartime activities of the textile laboratories of the Institute, one is of particular interest: finding a suitable adhesive material for finishing the hems of cuffless trousers. Manufacturers of men's trousers need an adhesive which will hold up under dry-cleaning and pressing. Moreover, cleaners are being besieged by customers who wish to have cuffs removed from old trousers in order that their suits may not seem dated.

There will be no dearth of problems, small and large, for textile laboratories to undertake in the emergency. At Ohio State University a short-time project on sewing thread is being planned, because wartime economies will necessitate more home sewing.

Housing and Household Equipment

At first glance this field of research would appear to be the hardest hit by priorities. Maude Wilson writes from Oregon that the project on which she has been co-operating with the station architect—standardizing farmhouse plans—has been closed for the present. The architect is in the Army, and priorities on building materials make house building out of the question.

She is hopeful, however, that the results to date on this project and the one on dimension standards will be of value in postwar years. The latter project is being continued with emphasis on economy of labor and materials in "plan patterns" for cabinets, closets, and simple remodeling.

Letters from two stations reported that their technical work on equipment had been suspended because "household equipment has little or no place in our present program as we need to turn our efforts to problems which will aid in the war effort."

The impact of war in this field has been felt at the Nebraska station in the temporary suspension of household equipment research through the leave of absence granted to Arnold E. Baragar to accept an appointment in the Office of Price Administration to develop standards for gas and electrical appliances and repair parts for consumer commodities. Mr. Baragar does not subscribe to the views expressed by the research workers quoted above. He points out:

> Despite the fact that considerable data regarding some types of household equipment have been gathered during the past few years, there still remains much to be known. This need becomes apparent when the problem of formulating standards and specifications arises.
>
> For instance, with the possibility that the use of steel for enameled ware will be curtailed, there will be left only two types of cooking and baking ware, namely, glass and earthenware. We

know nothing of the performance characteristics of flameware, including efficiency, as compared with enamelware and aluminum utensils; its ability to withstand thermal shock; and its general adaptability to the usual cooking practices. Here is a problem that needs some investigation.

Another problem that comes to mind is that of replacement parts. Suppose that replacement parts cannot be made of the same materials as heretofore, then how will their use affect the performance of the appliance? Would it not be the function of the experiment station laboratories to investigate these changes so that adequate advice could be given when replacement becomes necessary?

Also for the new appliances that are being made of noncritical materials, how will the efficiency and performance be affected?

The experiment station laboratories should be ready to answer as many questions as possible as to what is taking place and, from my own experience, I should say they should become as well informed as possible as to what is happening in the equipment field.

Home Management and Consumption Economics

Successful management of family resources, material and spiritual, assumes increased importance as living becomes more difficult because of the war. The change from peace to wartime economy has necessitated adjustments in certain of the station projects in this broad field and has given greater significance to others.

The long-time household-account studies of the Illinois station and the more recent combined farm-and-home-account studies are providing excellent source material for wartime adjustments in farm home management. Lita Bane writes:

> Studies relating to the use of farm income seem particularly relevant to war problems, as a basis both for realistic public policy and for helping families with planning their own use of resources. . . .
>
> During the times of *changing consumption patterns* in a nation at war, family money management is vital in maintenance of the physical and mental well-being of the families, in view of higher prices, higher taxes, curtailed goods, and increased savings.
>
> Data from the same families over a continuous period of eleven years through increasing and declining purchasing power indicate facts that will assist families in making wise adjustments in their management of money and nonmoney resources for the present and postwar period.

The practical uses to which accumulated data have been put include the preparation of a financial planning booklet so arranged that the family can separate fixed uses of income from flexible uses. "Since adjustments can be made more easily in flexible uses without lowering the level of living of the family, it is important to make the adjustments in that group of uses first."

The booklet is to be used in many of the county programs of the home economics extension service as the basis of lessons on strengthening home defense through family home management. One Illinois defense plant of 3,000 employees has asked for research material on cost of living for use by groups studying family finance; the plant hopes to prevent a demand for higher wages through helping families make better use of their present wages.

Family Relationships

If ever there were need of happy relationships within the family and the maintenance of high morale among its members, it is now.

The nutritionist attempts to raise family morale through dietary recommendation, particularly through adequate thiamin. Home management research workers hope to improve the morale of the housewife directly and of her family indirectly through study of fatigue in household tasks. The Illinois and Cornell stations, for instance, have studied fatigue in the home-laundering process.

In the field of family relationships the psychological approach is used. The long-time Nebraska investigation of personality development on farm, small-town, and city children, under the direction of Dr. Leland Stott, has thrown light on factors in home life contrib-

uting to a sense of responsibility and self-reliance in young people in adjusting to war conditions. Doctor Stott now plans to place even more emphasis on the development of morale, stating:

> We are including scales designed to measure "morale" with respect to both the general world and the war situation—civilian morale—and the farm situation of Nebraska in particular. Out of it we hope to learn some of the conditions related to good or poor morale.

Plans of the division of family life at the College of Home Economics at Cornell University include studies of the effects of war activities on the lives of adolescent boys and girls in a large industrial city and of the effects of war on the marriage decisions of young people who had earlier taken the marriage course at Cornell.

Foods and Nutrition

The war has accomplished much in popularizing nutrition and arousing public awareness of the need of more knowledge of the nutritive value of foods and of the food habits, nutritional status, and food requirements of the population.

At the experiment stations this has resulted in (1) a continuation of the long-time projects already under way on the nutritional status and requirements for various age groups with more emphasis on those of the college-age group and with men as subjects in the belief that in time of war it may be more important for the armed forces and civilian workers to be physically fit and well fed than the women at home; (2) a revival of short-time, more or less qualitative, food consumption studies as an aid to extension and Farm Security Administration workers and other educational agencies in giving dietary advice; and (3) a great expansion in research on the nutritive value of food as affected by various factors. To enlarge on these points briefly:

(1) At the Land-Grant meeting in Chicago last fall I discussed at a meeting of the home economics section the recommendations of the research section of the National Nutrition Conference for Defense and showed how closely our nutrition research program fitted into these recommendations. The proceedings of this convention include a summary of this talk,[1] and I will not take time to go into it further beyond saying that it has been felt advisable in most instances to continue the type of investigation even if the tendency at present is for practical short-time projects. In the cooperative project in the western states on ascorbic acid metabolism of college students, work is now being concentrated on men students. At Ohio State University a project has recently been completed on the food habits of men students at two dining halls: one with a high and the other with a low-cost budget. Both studies reveal the need for further work with young men.

(2) The significance of traditional food habits has been brought out by the Food Habits Committee of the National Research Council and is beginning to be reflected in a few of the food consumption studies at the experiment stations through attempts to get at the causes of faulty food habits. In Mississippi, Dorothy Dickins is attacking the problem of the hows and whys of traditional food preparation methods. In describing her new study she states:

> It is important to know how to produce and prepare food to yield maximum nutritive value, but it is also important that the housewife be willing to adopt the recommended methods. . . . Knowledge of the reasons for certain methods in cooking will enable home economists to effect needed improvements. Methods of cooking are products of experience, of family background, of contacts either directly or indirectly with home economists and with foods and nutrition literature, of equipment available for preparation, of type of menus used, and of other activities of the housewife.

(3) Finally, I have come to what I consider the most significant development of the year

[1] Proc. Assocn. Land-Grant Coll. and Univ., Fifty-fifth Annual Convention, Chicago, Ill., Nov. 10–12, 1941, pp. 227–231.

in experiment station research in home economics—the launching of the nation-wide co-operative project on conservation of the nutritive values of foods. This project was selected last fall by the subcommittee on home economics of the committee on experiment station organization and policy as particularly appropriate for home economists to undertake in the emergency.

Many of you are familiar with the history of the initiation of this project. Four technical committees have been appointed, each composed of a representative from each of the regions and the U. S. Bureau of Home Economics, to act in an advisory capacity.

These committees and their chairmen are: statistics, Dr. B. L. Wade, Vegetable Breeding Laboratory, Charleston, South Carolina; vitamin assay methods, Dr. Agnes Fay Morgan, University of California; mineral assay methods, Dr. Elsa Orent-Keiles, U. S. Bureau of Home Economics; and cookery methods, Dr. Faith Fenton, Cornell University.

The vitamin assay and cookery methods committees have already issued mimeographed recommendations for the standardization of methods and techniques. I anticipate that these reports will be in considerable demand by all engaged in studies of the nutritive values of foods, whether or not these are being conducted co-operatively.

One Southern project illustrates an ideal set-up for truly co-operative work. Several stations are following identical procedures in determining the vitamin C content of two varieties of turnip greens, grown in soil treated and untreated with a nitrogen fertilizer, harvested at three stages of maturity, stored under favorable and unfavorable conditions, and finally cooked one-half hour and four hours, respectively.

Thoroughness in the regional attack on the problem is shown by the plans of the western region, where co-operative research is to be concentrated on 13 foods. For each of these one station was designated as the key station with at least two others participating. A home economics research worker in each state was then designated by the station director to explore the field for the particular commodity assigned to that state, as to research done and further research needed. From the data thus secured the research representatives from all of the participating stations will plan the research program for this commodity.

This co-operative project is only in its initial stages, but the foundations are being laid for a comprehensive attack on a greatly needed problem by reasonably uniform methods. The Bureau of Home Economics comes into the picture as the receiving end for foods to be studied for losses incurred during transportation.

Army representatives interested in nutrition—notably Mary Barber, food consultant to the Secretary of War, and Colonel Paul Howe of the Sanitary Corps—are hoping that losses in nutrients in the preparation of foods for the Army will be studied, and both are doing what they can to foster the project.

Perhaps the most important outcome of the co-operative project to date has been in the development of a real spirit of co-operation, departmental, regional, and national.

Institutional Persons Needed

Majors in institution administration who have been out of college one to three years are badly needed for mass feeding services in Washington, D. C. Twelve could be placed now, says Mabel Ashenfelter, supervisor of cafeterias, Welfare and Recreation Association of Public Buildings and Grounds, Inc., quasi-government agency which handles the feeding of government workers in 50 buildings, including War, Navy, FBI, some of which have 24-hour meal service. Truly patriotic work, with rapid promotion for the right type.

High Lights in Nutrition Research

MARGARET S. CHANEY

Dr. Chaney is chairman of the department of home economics at Connecticut College in New London. She is also co-author, with Margaret Ahlborn, of the well-known textbook "Nutrition."

THE great number of papers and abstracts on nutrition in journals and experiment station reports and the wide diversity in nutrition subject matter make a seven-minute report on nutrition research seem incongruous. I shall make no effort to cover all of the significant branches of nutrition. I shall, no doubt, leave out papers which some of my colleagues would include. I will even mention some facts not actual research, because of their relation to research and to nutrition problems of the moment.

First I wish to refer to the Nutrition Foundation—a high light for, if not in, nutrition. This recently formed organization consists of 17 industrial companies whose contribution of $25,000, according to Dr. Karl T. Compton, chairman of the Board of Trustees of the Foundation, is making possible a broad program of exploratory research related to our war effort, of immediate advantage to public health and to the long-time advancement of the fundamental science of nutrition. This joint effort of commercial and educational organizations to further research for the good of mankind should pay big dividends in the future.

Research on B-Vitamins

The field of nutrition which during the past year has consumed the greatest amount of research time, has occupied the most space in scientific publications, and at the same time has been to quite a degree capable of interpretation into vital practical problems is, no doubt, that of the B-vitamins.

Today I wish merely to mention what Williams calls the "lesser" vitamins—choline, pyridoxine, pantothenic acid, biotin, inositol, para aminobenzoic acid, and folic acid. As Williams says, they probably perform essential functions for the human being but are less apt to be lacking in the usual dietary. Present knowledge of them tends to confuse the public and give an exaggerated idea of their practical value.

On Causes of Gray Hair

A good example of this confusion is the problem involved in graying hair. Already on the market are found "cures" for this condition. In a recent local paper, calcium pantothenate, advertised "not as a drug but as a food," is said to return hair color in 88 per cent of the persons tested; a 30-day treatment costs $2.75.

PAB, para aminobenzoic acid, is believed by other research workers to be the factor related to the prevention of graying. More recent work indicates that it may be the ratio of pantothenic acid to para aminobenzoic acid which determines whether or not the hair of rats, and possibly of human beings, turns gray. A ratio favoring PAB seems to result in graying.

Martin believes that microorganisms may be at the root of the problem since some germs normally found in the digestive tract grow excessively when PAB is present, destroy pantothenic acid, and thus upset the ratio of the two compounds. Other workers believe that the anti-gray-hair factor is still an unknown.

The possible harmful effect of one or more of the proposed anti-gray-hair factors brings an editorial caution from the American Medical Association and should make us stop to consider before we take a "treatment."

On Bread Enrichment

My comments will relate largely to problems brought about by the war. Although riboflavin was specified in the standards for en-

riched bread, the supply of this chemical was not enough to permit its inclusion. Among the studies made to find new sources of this vitamin is one on whey, one of milk's by-products in which riboflavin was found to be adsorbed to lactose crystals. Three hundred micrograms of riboflavin per gram of sugar have been secured in the laboratory.

At present, thiamin, niacin, and iron are added to enriched bread at the small cost of about twenty cents per capita per year.

Of especial interest to those who belong to the brain trust is a study which indicates that a large amount of the B-complex prevents fatigue of the central nervous system, which includes the brain; it did not affect muscular fatigue.

On Sources of Vitamin A

Because about ten trillion units of vitamin A are being sent annually to Great Britain under lend-lease terms, efforts are being made to discover additional sources of this vitamin. Shark-liver oil is now being prepared in Australia.

In this country it has been announced that whale-liver oil contains a chemical named kitol which can be turned into vitamin A by heating the oil to 500°F. To prevent shortage of vitamin A, the War Production Board has ordered all preparations for human use limited to 5,000 units per day. The amount of vitamin A available to poultry raisers and breeders, however, has been increased to step up egg and meat production.

On Rebuilding Hemoglobin

A study of 27 blood donors showed that regeneration of hemoglobin after a 500 cc donation was eight times more rapid when ferrous sulfate was given than when it was withheld and that a return to the previous level came in an average of 11 days. The worker found that the most effective time to administer iron is before the loss of blood and recommends that the daily diet of donors be supplemented with iron.

On Skin Health

A relationship between the thyroid gland and acne has been indicated in a study of 85 college men and women. In general the worse the acne the lower the basal metabolic rate; administration of thyroid extract improved many cases, indicating that the underactive thyroid gland may cause the skin disturbance.

Another study links lack of fatty acids, especially linoleic acid, with skin health; severe cases of eczema have been cured by a diet containing linoleic acid fats such as butter, lard, and salad oils, or by doses of linseed oil. It is to be hoped that fat and oil rationing will never endanger our health.

On Amino Acids and New Technics

Investigations on tryptophane have shown for the first time the specific essential nature of this amino acid for the human being; the suggestion has been made that without plenty of tryptophane the body may not be able to use vitamin A even if the latter is present in the diet.

Brief reference should be made to the use of radioactive elements as a means of investigating the intermediary metabolism of the minerals—calcium, phosphorus, and iron. Another method of study which is being found useful in vitamin research, because of its accuracy and economy of time and money, is the microbiological technic.

Book on Vitamin Values

Just published by the Bureau of Home Economics is "A Compilation of the Vitamin Values of Foods in Relation to Processing and Other Variants," with data from 34 journals through December 1940, an invaluable addition to the nutrition library. The effects of cooking, canning, and dehydration on foods is receiving much consideration from nutrition workers.

Three General Studies

Reports of three important studies on groups of people have been published this year. The

first, by Ebbs and co-workers, on a group of low-income women showed the beneficial effects on both mother and child of supplementing inadequate diets during pregnancy. Shortened duration of labor, less anemia and toxemia and fewer threatened miscarriages, more successful breast feeding, and less illness in the infants during the first six months of life were listed among the results of the improved diet.

The second study, part of the regional project relating to the nutritional status of college women, gave the dietary habits of over 3400 students in six colleges. Meat was found to be most frequently chosen by the largest number of students, and next, in order of popularity, were milk, green and yellow vegetables, citrus fruits, and whole-grain products. Improved dietary habits of the upper classes were noted, also the tendency of coffee, tea, and cola drinks to displace milk. Results indicate points for emphasis in teaching.

The third report told of the five-year mass studies in human nutrition made in Pennsylvania. By means of various nutritional tests such as physical examination, weight, skeletal maturity and mineralization, teeth, hemoglobin, red-cell count, photometric response, capillary wall strength, and dietary studies, 2400 subjects were investigated. In general, it was found that people of all income and educational levels greatly needed improvement of nutrition, the need increasing as the income and the educational conditions became poorer. Nutrition education as given in a college community had desirable effects not only on the school children but also on their parents. Such research studies act as a spur to those of us who work with human beings whether it be in the clinic, school, or home.

Homemakers Volunteer for Hospital Work

Cleveland was one of the first cities to train home-economics-educated homemakers as hospital aides so that they can take over the routine duties of dietitians in emergencies and thus release them for more important tasks. The plan is to have each volunteer get experience in the dietary work of every unit of the hospital.

In the babies' and children's division of one hospital the homemaker volunteer makes out tags for feedings, sometimes as many as six tags for one feeding. She sterilizes the bottles and marks them with the babies' names in red. She also feeds the children and has so much fun doing this work that she hates to move on to another unit.

Another volunteer assists in a diet kitchen, where trays are prepared for patients, checks each item, and marks the tray with the patient's name. When help is short she takes the tray to the patient and later returns it to the diet kitchen.

One volunteer peeled a crate of grapefruit one day, then divided them into sections and counted the sections. Another tells of cutting what seemed like millions of carrot strips. Still another assists in the large bakeshop where the desserts and pastries are made. Or she may prepare sandwiches for doctors', nurses', and visitors' dining rooms.

Dietitians with whom I have talked are enthusiastic about this type of volunteer work.—From report by MRS. LOIS WORLINE, Cleveland, chairman-elect of the AHEA homemakers' section.

Changing Food Habits

MARY SWEENY

Miss Sweeny is assistant director of the Merrill-Palmer School in Detroit and one of eleven executive members of the Committee on Food Habits of the National Research Council. She was the seventh president of the American Home Economics Association and its first executive secretary. Before World War I she was active in school-lunch and nutrition work. The report below, prepared by the Committee on Food Habits, was the springboard for Miss Sweeny's speech in Boston.

THE Committee on Food Habits of the National Research Council has been charged with the responsibility of mobilizing anthropological and psychological insights as they bear upon the whole problem of changing food habits in order to raise the nutritional status of the people of the United States and ultimately of other peoples of the world.

Food Habits Tied to Way of Life

The approach of the Committee is based on a recognition that food habits can never be studied in isolation but are only a part of the culture of a people, inextricably bound in with the other aspects of living: distribution and consumption, caste and status classifications, infant care and educational procedures, symbols of maturation, patterns of interpersonal relations, as well as the material equipment of living, style of housing, furniture, kitchen utensils, heating, storage, refrigeration.

In past considerations of food habits different aspects of this cultural whole have been emphasized. The "Live at Home" program, for instance, emphasized the whole way of life of single-crop farmers and the need to alter the habits of production and food preservation as well as food preparation and consumption habits.

Too little attention has been given to the place of changing food habits in the whole problem of social change in the American Southeast, to food habits in the context of caste, economic peonage, the symbolic position of the past which lowers the possibility of educational appeals through children.

In attempts to change food habits of urban groups whose patterns differ markedly from our own (Southern and Eastern Europeans, Mexicans, and Puerto Ricans) there has only recently developed a recognition that each of these peoples, when eating their traditional diet, have a style of nutrition which contains compensating and balancing elements, so that attempts to add, subtract, or substitute in a different food style might lower rather than enhance its nutritional value.

Symbolic Uses of Food

A further aspect of the problem is just beginning to be recognized, the importance of behavior associated with food; for instance, its use as reward or punishment. Such a use of food is routine in some cultures where mothers cannot imagine any better way of making a child eat his vegetables than by threatening to withhold his dessert, but it is repugnant to members of other cultures (as for example the Italians) who cannot conceive of a kind mother ever withholding food from her child. "Food habits" in these two contexts and any attempt to change them would mean very different things.

Eating what one wishes is a symbol of increasing personal independence as a child grows older, so that American mothers decrease their pressure on a child to "drink his milk" and American adolescents assert their right to break as many food rules as possible. This fact has important implications for any program to alter food habits.

Knowledge of the life history of the indi-

vidual also throws light on the problem: both the cultural pattern involving such things as the shift to bottle feeding and changing styles in feeding infants solid foods, and the particularistic form—for example, his experience with food thrust upon him by an overanxious mother.

Recent studies tracing some forms of asthma to conflicts over food in early childhood highlight the possibilities of such an approach. Battles which parents wage with children over such issues as "drinking milk," "eating vegetables," "finishing everything that is on your plate," and "not eating between meals," may express themselves in the food habits and therefore in the nutritional status of a whole generation.

The extent to which eating the right food is represented to a child as a matter of morality, of obedience to some authoritarian figure rather than as his own choice, must be considered when problems affecting food, nutrition education, rationing, and price levels are being planned. Otherwise we shall have food situations invoking docile, childlike attitudes similar to those conspicuous in the sugar registration.

Need for New Food Patterns

The existence of a cultural pattern in regard to food, which involves a maximum utilization of available nutrients in the customary diet, is the only final guarantee that a people will be well fed. Economic conditions of various sorts, uneven distribution of purchasing power, inaccessibility of essential foods, soil which is incapable of producing nutritious foods—all of these may prevent a people from having an adequate diet.

But removal of such handicaps to a good diet is insufficient without a cultural pattern which guarantees that good food when it is available will be grown, harvested, processed, stored, prepared in ways which will conserve its values, and finally eaten in a framework of good interpersonal relations.

The Committee puts its final emphasis therefore upon ways in which our national and regional food patterns can be changed. Changes in the culture pattern come about, of course, through individuals, but it is possible to select individuals who hold the keys to social change. So once those who plan institutional meals of all sorts (such as school lunches and restaurant meals) are convinced that milk is a beverage which should appear among the alternative beverages offered, an important step has been taken toward incorporation of milk in the habits of the individuals. Day-after-day exposure to the phrase "milk, tea, or coffee," instead of "tea or coffee" will have its effect.

Our pattern of expecting that the three meals of the day should be different, not only one from another, but different in a systematic way, is one important guarantee that there will be variety in the diet, as against the usage among economically depressed groups in the South in which one meal is likely to contain whatever was left from the last meal. The Committee recognizes that a great part of the existing lamentable malnutrition in the United States is primarily dependent upon insufficient economic resources. But it seems also that psychology and anthropology have a contribution to make for the establishment of cultural patterns more consistent with developing nutritional science.

Key: Mass Feeding Situations

Aiming then to alter the patterns of behavior through restructuralizing food situations, the Committee has emphasized the importance of taking advantage of such mass feeding situations as are developing during the war.

The increased emphasis upon balanced meals in the armed forces is bound to have profound effects upon future American food patterns. If comparable emphases can be developed in day-care centers for young children, school lunches, and feeding in industry, a great change can be made in the cultural expectation of which foods are to be eaten and of the way in which a normal meal is constructed.

The implementation of such a program of

social change depends upon the integration of nutritional knowledge with other types of knowledge, knowledge of social organization, of the importance of the setting in which food is eaten, of such factors as regional, national, and religious differences. It is this type of orientation which this Committee is trying to supply.

The Democratic Approach

At the same time that efforts are being made to utilize group feeding situations not only to provide good food to war workers and their children but to introduce lasting changes in American food patterns, the Committee is also called upon for advice on how individuals may be prevailed upon to abandon food habits which lower their health and efficiency.

Here the Committee feels the emphasis should be placed upon habits as something to which the individual is bound to some degree, that is, that "bad" food habits interfere with his health and strength, but that attempts to get him to change should not emphasize exhortation to form "good" food habits, which is tantamount to asking him to undertake to fetter himself with a set of good chains in place of a set of bad chains.

Instead, it can be shown that his traditional diet contains certain weaknesses which scientific study of nutrition has pointed out and from which he may wish to emancipate himself by choosing to follow the new discoveries of nutrition. Or, if an individual's bad food habits are a reaction to those exacted from him by his parents in his childhood days, he can be shown that he is not acting freely in living on hot dogs and soda pop, but is instead letting his food habits be determined by his desire to do the opposite of what he was taught as a child, and so prove that he is grown up. By demonstrating to individuals that they are being coerced by either traditional or personal habits of low nutritional value, and that there is good evidence to believe that freeing themselves from such habits will increase their personal health and efficiency, nutritional education can be made democratic and part of a general program for developing in each individual a sense of responsibility.

When this attitude toward changing food habits is taken, it means that the way in which nutrition education is given becomes important also. So the Committee has concerned itself with such questions as how nutrition information can best reach the individual housewife, and the importance of integrating information about nutrition with consumer advice and material on child care, so that the recognition that food habits are simply part of a whole way of life may be given concrete expression in our wartime plans for the participation of each individual homemaker. In this connection the Committee has emphasized the value of nutrition study groups in which all participate in a learning situation.

There is danger that people who register for courses will adopt a passive acceptance of what they are taught instead of taking an active and responsible attitude. The mere acquiescence in something that is taught, either in the name of science or more recently in the name of a government program, does not promote a vigorous adult attitude. If people are allowed to stay in such passive situations, there is every possibility that they will rebel later against the very rules which they have appeared to accept in such a docile manner.

Experiments conducted on behalf of the Committee by Professor Kurt Lewin of the State University of Iowa have demonstrated that children before adolescence do see their behavior in regard to food as dictated by authority and even cite as "good behavior for a boy like me" "to eat vegetables" "because I don't like them," and Mother praises those good children who eat things that they don't like. At adolescence, however, this dependence upon authority begins to disappear, and it is a sign of maturity to make one's own choices about food. This potentiality in American character can be utilized in the way in which nutrition education is carried on, with a minimum recourse to authoritarian methods.

Representative Membership for Committees

It is highly important, therefore, that nutrition committees be organized with representatives from all economic levels rather than solely from the élite.

At an executive meeting of the Committee on Food Habits on April 27, 1942, the following resolution was passed:

To the end that the present nutrition movement in a war for the democratic way of life may be itself in the fullest measure democratic, and to the end, further, that the administrative and technical personnel engaged in the movement may have the fullest measure of such knowledge and counsel as are available from firsthand experience on the variant local, ethnic, and other values, interests, effective motivations, cultural patterns, and dietary possibilities and limitations among those groups of the country which are most lacking in adequate diet, the Committee on Food Habits recommends that on all state, county, community, and other over-all regional nutrition committees which make policies and initiate action, those sections of the population among which inadequate diets are most prevalent, particularly the lower income groups, both urban and rural, be adequately represented.

Sweets as Symbols

The recent curtailment in sugar has demonstrated in another way how nutritional considerations are bound up with other aspects of life. Curtailment in sugar has not only meant an alteration in sugar consumption, which nutritionists will hail with approval, but also an alteration in ways in which parents have traditionally been able to express their affection for their children, young people express their enjoyment of each other's company, and individuals who feel themselves deprived of many of the sweets of existence express their sympathy for themselves.

Alterations in the availability of sugar mean the need for new patterns for doing these various things for which candy, ice cream, cake, and soft drinks have been the symbols. The importance of such considerations has been recognized in British food plans which have attempted to keep up the supply of the soft drinks, for instance, while reducing the amount of sweetening, because of their morale value.

Integrating New Practices with Old

We may take an example from another field. Recent laboratory experiments suggest that the maximum food values can be obtained from fresh vegetables only if they are prepared just before serving.

Translation of these findings into household practices, however, involves the alteration of a great number of deeply engrained traditional practices of family life, such as the children's story hour and the moment when father comes home from work. Women have been taught that a good housekeeper gets her work done early. Peas shelled in the early morning have been a symbol of forethought which deserved praise.

Before all these patterns which have been associated together to make up American housekeeping are called in question by single-focused recommendations to prepare food at the last minute, careful thought is needed about all the readjustments which will be involved. Otherwise, there is every probability that most housekeepers will fail to adopt the new recommendations and will merely acquire one more anxiety about their failure to manage their lives.

Meals Cement Family Ties

Those who are interested in adequate feeding for children and for women in industry have been concerned with promoting more group feeding situations, and this promotion is met with resistance which has nothing to do with food as such but arises from the importance of meals in our culture as a way of cementing family life.

A proposal to serve a warm nutritional meal to working mothers and children may mean, to those who are asked to entertain the proposal, a threat of breaking up the home. When we realize that a study in Westchester County showed that 25 per cent of the time

which upper-middle-class and upper-class families spent together was spent at meals, and that, at the other end of the economic scale, it was observed during the mass feeding program in the depression that the cafeteria system, in which children were given individual tickets, broke up the homes of those whose only claim on the obedience of their children was the provision of food, a background for this attitude is provided.

Another facet of the problem is brought out by the reports of a large group of college girls who stated that a "room of one's own" was a necessary compensation for having to eat meals with the family. The deterioration of the food habits of those who live alone is undoubtedly related to the way in which American culture has set up eating the right food as part of a family situation in which children are coerced and husbands are cajoled into correct food habits as interpreted by the wife and mother.

Appropriate Motivations

Another problem which concerns home economists who are professionally employed in public or private enterprises is the relationship between the motivations invoked and the kind of agency which invokes it. Especially in wartime, there is a tendency for private industry to take over from the government appeals such as those to patriotism, concern for the national welfare, and obeying the government in slogans like "It is every child's patriotic duty to drink a quart of milk a day" or in a radio talk which ends with "Eat Oaties and so avenge Pearl Harbor."

Conversely, public agencies, community committees, and other responsible citizen bodies, in their attempt to really put over nutrition education points, take their cues from private advertising methods and promise that the girl who eats right will have a beautiful figure, a date every night, and an increase in salary.

Both of these tendencies, that of private advertising to exploit the motive of patriotic duty, and that of public agencies to exploit the individual's interest in personal charm and success, are inappropriate and confusing. As a solution of this problem which is likely to increase rather than decrease as the war goes on, it is suggested that the appeal to duty, involving as it does passivity and childlike behavior, and the appeal to selfish personal ends both be muted as much as possible, and a stronger appeal, that which identifies the individual's health and strength with the fate of the nation, be substituted.

So instead of "Eat right because the government says you should" and "Eat so as to be a personal success" themes, the "Eat so as to have maximum strength to win the war" should be emphasized. Congruent with this type of appeal would be greater emphasis on such motivations as close specific relationships between the nutrition program and the importance of preventing epidemics, preventing loss of work time by illness, freeing medical and nursing facilities for serious cases, freeing food for the armed forces. This approach will serve to offset the tendency which has been specially conspicuous since Pearl Harbor, to resent nutrition, child welfare, and all other programs which are regarded as being merely "good works" rather than war-oriented activities.

Need for Flexibility

Because of the possible alteration in the content of the market basket, due to failures in transportation, need of certain foods for export to our allies or to our armed forces abroad, shortage of refrigeration or processing facilities, the American housewife is going to need great flexibility. Combined with a desire to give her family the best food which she can, she must keep a sense of freedom and a sense of alternatives.

British experience has cautioned against the repercussions of teaching people that any given article of food is necessary for health. The further we get from any program of insisting upon particular, rigid formulas, the closer we will come to giving people the necessary flexibility for dealing with rapid and unexpected social change.

It is here that the positive side of the current emphasis upon vitamins comes in. When food values are expressed in terms of nutrients, of vitamins, and of minerals, a language is provided through which it is possible to translate the value of one food into the value of another and to discuss with different regional and national groups the special strengths and weaknesses of their traditional diets.

Therefore the Committee feels that while primary emphasis should be upon foods, nevertheless the increasing popular understanding of vitamins and minerals should be utilized for educational purposes.

Developing New Culture Patterns

There are certain implications in any emphasis upon the debt which is owed to the science of nutrition. Statements that science has improved on nature do not go well with statements about "natural foods." The assertion, in discussions of enriched bread, that whole-wheat bread is a natural food is the most frequent mistake of this type. Only the recognition that there is nothing "natural" about bread, but that agriculture, the domestication of cereals, milling, and baking are all the results of complicated human inventions, is compatible with an insistence upon the utilization of the science of nutrition.

At the same time it is important to keep in mind that in our present nutritional emphases upon what constitutes a balanced diet, we are not only stating the best scientific knowledge available but also creating a culture pattern. This pattern, which insists on a certain basic diet for everyone of a given age, sex, and work category, may be disregarding a quite different set of "natural" considerations, the idiosyncratic needs of different individual constitutions.

Many cultures have traditionally provided for individual choice by serving food of such varied types and such amounts that each person could select the specific items which he craved.

Recent emphasis in this country upon a meal which is planned as part of a weekly budget and which is uniform in composition for all except infants and invalids, is a new culture pattern which may have possible serious implications for nutrition. It will be seen that this problem again brings us back to choice and the importance of setting up situations in which responsible choice can replace either the slavish acceptance of a traditional diet or the equally slavish refusal to accept it in order to appear independent.

Other Scientists Can Aid Nutritionist

So any examination of the question of food habits brings the realization that almost every aspect of life is involved, an infant's expectation that the world will be a kind or cruel place, the way in which a child's character is formed, the pattern of interpersonal relationships between parent and child which will provide the pattern for later teacher-pupil, husband-wife, employer-employee relationships, the development of a sense of social maturity and personal autonomy.

By mobilizing the insights and the methods of anthropology, the study of culture as a whole, and psychology, the study of the laws of human behavior which find expression in each culture, the problem of changing food habits can be placed in perspective and handled with increasing scientific accuracy.

Reports to Date

By writing the National Research Council, 2101 Constitution Avenue, N. W., Washington, D. C., anyone may have free the reports thus far published: "Relationship between Food Habits and Problems of Wartime Emergency Feeding," "Relative Effectiveness of Lectures and a Method of Group Decision in Changing Food Habits," "A Group Test for Measuring the Anchorage Points of Food Habits," "Italian Food Habits and Their Relation to Wartime Problems of Food and Nutrition," and summaries of the May 1941 and June 1941 conferences with the Committee on Food Habits.

America's Changing Food Consumption, 1909–1941

ORIS V. WELLS

Mr. Wells went to the United States Department of Agriculture in 1929, then served in the Agricultural Adjustment Administration, and is now chief program analyst, in charge of prices and market work, in the Bureau of Agricultural Economics.

SINCE there are two misconceptions which might easily be read into the title of this paper, I think the reader should be immediately warned or set aright. First, this is only a series of notes rather than an authoritative or even a smooth-running discussion of the subject.[1] And second, the chief characteristic of per capita food consumption in America during the last few decades has been stability rather than change, although there have been a number of significant changes within the rather stable total.

I

I should like to start this series of notes with the statistical data upon which my analysis is based, as shown in the table.

There are several things about these data that need to be noted. The several foods or commodities have been grouped together according to their nutritional characteristics, with the exception of canned fruits and vegetables, and are stated in terms of the estimated weight available for sale in the retail market. In order to simplify the table further, the data are in terms of averages for the eight-year period from 1909 to 1916 and the consecutive five-year periods following, through 1937 to 1941.

I cannot argue for the absolute accuracy of these estimates—all that can be said is that they are the best series of continuous estimates which we have been able to develop so far. They are based upon production and estimated

[1] The exact measurement of food consumed or used by even so small a group as a family over a single week is a difficult task. As a result, almost all studies of changes in food consumption are necessarily in terms of apparent consumption or estimated disappearance from sources or channels which can be measured or reasonably well estimated. For those interested, the chief studies in this field are:

O. E. BAKER, "Changes in Production and Consumption of Our Farm Products and the Trend in Population," *Annals of the American Academy of Political and Social Science*, Philadelphia, 1929; E. G. MONTGOMERY and C. H. KARDELL, *Apparent Per Capita Consumption of Principal Foodstuffs in the United States*, U. S. Department of Commerce, Government Printing Office, 1930; Supplementary Report of the Land Planning Committee, Part III, *Agricultural Land Requirements and Resources*, National Resources Board, Government Printing Office, Washington, 1935; and J. P. CAVIN, "Consumption of Agricultural Products," *The Agricultural Situation*, Bureau of Agricultural Economics, Washington, January 1939.

There are some excellent studies of the consumption of certain commodities, as, for example: HOLBROOK WORKING, "The Decline in Per Capita Consumption of Flour in the United States," *Wheat Studies of the Food Research Institute*, Stanford University, July 1926; and EDMUND E. VIAL, *Production and Consumption of Manufactured Dairy Products*, Tech. Bull. 722, U. S. Department of Agriculture, Washington, April 1940. A summary of food consumption data for the United States and other countries is given in *Statistics of Food Production, Consumption, and Prices*, Volume IV of *The Problem of Nutrition*, documentation prepared by the International Institute of Agriculture for the League of Nations' Mixed Committee on the Problem of Nutrition at its second session, June 4, 1936. And for an extremely interesting general study, the reader is referred to: RICHARD OSBORN CUMMINGS, *The American and His Food*, University of Chicago Press, Chicago, *Revised Edition*, 1941. The data used in this analysis have been developed over several years by O. V. Wells, G. Lois Nelson, J. P. Cavin, and F. F. Elliott, and have been submitted for publication in the forthcoming issue of *Agricultural Statistics*, the statistical yearbook of the U. S. Department of Agriculture (1942).

*Estimated average annual per capita consumption of food in the United States, 1909 to 1941**

ITEM	1909–16	1917–21	1922–26	1927–31	1932–36	1937–41
	pounds	*pounds*	*pounds*	*pounds*	*pounds*	*pounds*
Dairy products						
Fluid milk and cream†	248.8	249.6	264.4	272.8	269.0	274.2
Evaporated milk, cheese, ice cream	13.9	19.9	22.8	25.1	25.6	33.6
Meats, poultry, fish‡	142.8	135.6	139.8	131.7	131.4	136.5
Eggs	37.2	35.7	39.5	40.9	35.5	37.7
Potatoes, including sweet potatoes	187.0	170.4	163.9	156.7	156.8	146.9
Beans, peas, and nuts	11.2	13.1	12.0	14.1	15.0	16.0
Fresh fruit						
Citrus	18.2	20.8	27.2	32.3	37.2	54.3
Other	156.0	139.4	140.9	144.4	132.6	144.1
Dried fruit	4.2	5.9	6.0	5.7	5.5	6.2
Canned fruit	4.2	7.9	9.2	13.0	12.5	17.2
Fresh vegetables§						
Tomatoes			13.8	13.8	14.7	17.2
Leafy, green, and yellow	100.0	100.0	51.7	57.6	60.8	69.5
Other			36.1	40.1	41.0	47.8
Canned vegetables	13.0	13.4	16.0	18.9	17.9	23.2
Cereal products						
Wheat flour	206.4	180.1	176.0	173.4	156.6	154.0
Other‖	77.1	55.6	51.3	49.4	43.3	42.1
Sugar and sirup¶	91.0	95.8	115.9	114.4	107.9	113.7
Butter and fats						
Butter	17.4	15.2	17.9	17.7	17.7	17.0
Other**	43.4	43.5	45.5	46.7	44.8	48.4
Coffee, tea, chocolate, and spices	13.2	16.6	16.7	17.4	18.4	21.2
Total††	1385.0	1318.5	1366.6	1386.1	1344.2	1420.8

* Consumption in terms of estimated weight available for sale in the retail market calculated from statistics of stocks, production, foreign trade, and estimated wastes between the farm and retail market.

† Calculated by taking 80 per cent of estimated consumption of whole milk and cream in terms of whole milk.

‡ Excluding bacon and salt pork and including an allowance of 14 pounds per capita for fish, 1909 to 1941.

§ Consumption per urban inhabitant, since farm-garden production has not been estimated.

‖ Buckwheat and rye flour, breakfast cereals, and cornmeal.

¶ Chiefly cane and beet sugar, with sirup and other sugars accounting for about 13 pounds per capita, 1909 to 1941.

** Salad dressing, margarine, vegetable oil cooking compounds, bacon and salt pork, and lard.

†† Simple sum of items without correction for some duplication between sugar and ice cream and canned fruit.

stocks at the start of each year, corrected for imports, exports, nonfood or industrial uses, stocks at the end of the year, and estimated average or normal wastes between the farm and the sales counter in the retail market.

The best over-all check we have been able to

obtain is a series of estimates which Dr. Hazel K. Stiebeling and her associates calculated from the nation-wide Consumer Purchases Study of 1935–36. On the average, the Consumer Purchases data differ from these by not more than 5 per cent, with the Consumer Purchases Study indicating a somewhat higher consumption of certain vegetables, and these derived estimates, a somewhat higher consumption of meat. The translation of Consumer Purchases data into estimates of average annual per capita consumption itself involves a series of statistical estimates; and, in a number of cases, there are significant differences between the data derived from the survey or food-estimate schedules and those derived from a more accurate but much smaller number of food records which were also obtained.

Eight Trends

Turning now to the data themselves, I should like to call attention to the several items or trends which I consider significant. These are:

(1) The average annual consumption of food over the last three decades has been remarkably stable with relatively small variations as between years in terms of the total. As shown, the total is expressed in terms of total weight of food moving through the retail market or its equivalent, but substantially the same conclusions would be reached if the total were expressed in terms of calories or other nutritional measures such as vitamin or mineral content.

(2) Consumption of potatoes and cereal products, especially flour and cornmeal, have shown a downward trend. The consumption of wheat flour dropped 24 pounds, or about 12 per cent, between 1916 and 1919, failed to show any significant increase following World War I, again declined during the period from 1930 to 1935, and at present is only about 75 per cent of what it was prior to World War I.

The consumption of cornmeal has also been declining, and at present is only about 40 per cent of what it was during the period from 1909 to 1916. Our data also indicate that there is a slow downward trend in the consumption of potatoes, with current consumption down to about 80 per cent of the level which existed prior to World War I.

(3) The consumption of sugar increased about 20 pounds, or 25 per cent, between 1920 and 1925 and then continued at 100 pounds or more per capita through 1941. This increase in sugar consumption has often been interpreted as a shift offsetting the decrease in cereal and potato consumption and also as reflecting the result of rising incomes and the maintenance of standards of living at a very high level following World War I.

(4) The consumption of meat and eggs has remained stable, while some increase in the consumption of beans, peas, and nuts is indicated. True, the per capita consumption of eggs and meat, including poultry and fish, has fluctuated somewhat between the several periods, but there is no significant trend. Such data as are available indicate that the consumption of dry field beans increased from 6.2 pounds per capita in the period from 1909 to 1916 to 8.8 pounds per capita in that from 1937 to 1941.

(5) A steady increase is indicated for the consumption of the manufactured dairy products—condensed and evaporated milk, cheese, and ice cream—from 1909 to 1941, with some increase in the consumption of fluid milk and cream following World War I, and a further slight increase in the period from 1927 to 1931 as compared with that from 1922 to 1926, and again in the period from 1937 to 1940 as compared with that from 1932 to 1936. Butter consumption has remained stable, with the 1932 to 1941 average almost identical with the 1909 to 1916 per capita consumption.

(6) The consumption of fresh fruit has remained stable, but with a considerable shift away from apples to citrus fruit. The consumption of apples is currently running at about 65 per cent of the level which existed prior to World War I and that of citrus fruit at about 300 per cent.

(7) The consumption of vegetables has been increasing during the last two decades, with some slight shift toward leafy, green, and yellow vegetables and tomatoes, consumption of which has increased about one-half since the period from 1922 to 1926. Such data as we have, indicate that the consumption of vegetables was relatively steady from around 1905 through 1925 and that the shifts since then have been in line with the educational recommendations that have been developed from a nutritional standpoint.

(8) And finally, an analysis of supplementary data, as well as general observation, indicates that there has been a marked drift toward types of food and methods of distribution which lessen "the struggle" of food preparation. That is, there has been a steady increase in the packaging of food and the services which grocers and others render in the form of cutting, trimming, slicing, and freezing before actually turning the food over to the consumer.

I think this is significant not only in its effect upon the amount of time and effort required in the final preparation of the food in the home but also in its effect upon the increase in the margin between prices received by farmers and prices paid by consumers during and following World War I and in relation to some of the economies which we may be forced to during World War II.

II

The distribution and nutritional adequacy of this food supply should also be discussed, as well as the prospect ahead.

As all of you are well aware, there has been a steady increase of interest during the last decade in the comparative data relating to distribution of food in different income groups and the development of methods by which low-income families can obtain a more adequate diet.[2]

This is an interest which I am sure will be sustained; and, although I am not certain that we can find the available resources to increase further the average per capita amounts of food available during the war period, it is clearly desirable that an increasing amount of our energy and funds should be spent in this field following World War II.

Conditions for Good Nutrition

Three conditions must be met if we are to obtain the nutritionally adequate food which I am sure all of us so much want. First, consumers must be educated to desire or to demand a nutritionally adequate diet. I suspect that to require every person in the United States to eat an ideal or altogether adequate diet in the year ahead would call for as much or more "regimentation" than many of us would want.

This is a field, however, in which the work is well started and I am certain that members of the American Home Economics Association will see that it is continued.

Second, it is essential that consumers generally have the means to obtain enough food to assure an adequate diet. This requires either full employment and adequate incomes for all families or the development of some means of supplementing purchasing power available to low-income families for food.

The current food stamp and school lunch programs of the U. S. Department of Agriculture fall in this second field, and the main stream of economic and social science is today devoted very largely to the problem of maintaining full employment.

And third, farmers must produce the needed food. Frankly, I think the third requirement is the easiest one to meet, assuming that reasonable prices can be offered. It is, of

[2] The reader is referred to: MILO PERKINS, *The Challenge of Underconsumption*, U. S. Department of Agriculture, Federal Surplus Commodities Corporation, Washington, February 1940; HAZEL K. STIEBELING, *Are We Well Fed?*, Misc. Publ. No. 430, U. S. Department of Agriculture, Bureau of Home Economics, Washington, 1941; and O. V. WELLS, *Estimates of Quantities of Food Necessary to Provide Certain Specified Diets and Crop Acreages and Numbers of Livestock Required for Indicated Production*, statement submitted to the Select Committee Investigating National Defense Migration, House of Representatives, February 13, 1942.

course, extremely difficult to obtain increases in food over any short period; but over any reasonable number of years, food production could be increased materially, provided, of course, that all surplus or transferable resources are not otherwise engaged.

Production in 1942–43

With respect to the immediate prospect for the twelve months ahead, we have in sight what appears to be the largest supply of food on record. At the same time, however, there are certain foods which are and will continue to be short for some time, while a considerable portion of our food supplies will be needed to maintain the armed forces and to supply our allies with the food which they so greatly need. The armed forces and the lend-lease program, of course, will demand large quantities of concentrated foods; and the effective demand for these is limited by shipping facilities rather than by supplies or the quantities desired.

After these demands have been satisfied, however, it is likely that our average per capita consumption of food during the next twelve months will be about equal to that during the period 1936–40, except for an occasional item such as sugar. This may not be equivalent to the record food consumption during the past twelve months or during 1941. But it will certainly be sufficient to allow everyone about as good a diet as he has been accustomed to, provided reasonable measures are taken to assure equitable distribution of the few foods that may be short.

Liabilities . . . Assets

With respect to the future, we must remember that farmers are faced with shortages of labor, supplies, and equipment, so that maintaining or increasing agricultural production will be a difficult task.

At the same time, we should also remember that we are still the best-fed nation in the world, even though current diets may still not entirely measure up to the ideal nutritional standard set by the National Research Council, and that the war effort requires that we increase the production of milk, eggs, meat, and a number of fruits and vegetables, all of which are foods that could be used to improve our own national diet once World War II is successfully concluded.

Make Rationing Work

The all-important fact that rationing means no one shall get more than his fair share seems not to have registered throughout the country. There is in some minds the kind of confusion which associates rationing with poverty or dictatorship. Many Americans are so accustomed to think of this country as the land of plenty that they refuse to believe the warnings of scarcity even when the rubber wears thin and the shelves stand bare. We must be on the alert to eradicate the first signs of a spirit that would place a premium on subtle ways to defeat rationing restrictions.

To make rationing work and thus protect their own essential needs, consumers must understand rationing regulations and make no effort to get more than their fair share. They must look at the black market, its sellers and buyers alike, as sixth columnists who are feeding their own selfish interests at the expense of our boys in the fighting forces, our workers at home, and our very families.—From a paper by ROBERT SESSIONS, OPA, read by Ruth Ayres.

Trends in Food Products

DOROTHY E. SHANK

Miss Shank has been in charge of the food utilization section of the U. S. Bureau of Home Economics since 1940. Prior to taking up her work in Washington, she was director of the research kitchen of the American Stove Company, Cleveland, Ohio.

THIS WAR moving with such dramatic swiftness all over the world, calls for producing, consuming, transporting food on a scale never dreamed of before. This means we must revise our older methods of food preservation to meet shortages of materials. By dehydrating and concentrating foods we must effect greater space saving for shipment. We must devise ways to get more protein foods to our allies. We must also learn the possibilities of new foods and ones we have passed by rather casually in peacetime.

General Methods of Preservation

Canning has long been the most convenient and popular means of supplying us with well-liked nutritious food the year round. Tin cans have gone to war. The shortage of rubber has brought new problems on closure for glass jars.

Krauting, pickling, fermenting, and brining are acceptable methods of food preservation and produce palatable products, but they cannot be used to preserve large proportions of our food supply for out-of-season use or to reduce transportation space.

Much can be said for the preservation of food by freezing, but it has some handicaps, too. Although there are about four thousand frozen food locker plants in operation with approximately a million families preserving at least part of their food this way at present, the capacity for freezing is still limited and frozen food is not conservative of space during transportation or storage.

Dehydration to the Fore

Drying food as a means of preserving it is as old as the records of food itself. However, further investigation of drying methods and of subsequent storage is necessary to bring dehydration in line with our knowledge of vital body needs. From the standpoint of space saving, the Army estimates that 27 million pounds of potatoes would normally need 125,000 tons of shipping space. After dehydration, the weight would be 3 million pounds and the shipping space required only 15,000 tons, about one-eighth of the usual space.

Dried Fruits

Fruits present but little difficulty. Many of them have been dried successfully both at home and commercially and appear almost daily on the menu. As the sugar content of fruit is increased by dehydration, its use will help provide sweetening for many desserts and decrease the amount of sugar ordinarily used.

Dried Vegetables

Vegetables present a more complex problem. There are many different kinds and they vary in cell structure and composition. One variety of any vegetable may require different treatment in drying than another variety. The degree of maturity at harvesting time may also affect the treatment required.

Where large quantities of vegetables are to be prepared, as for institutions or the Army, long soaking and cooking are impractical, and for such uses, it should be possible to reconstitute the food in about half an hour and then cook it in a relatively short time.

The soaking time for products now being produced commercially varies with the vegetable and its form. From samples we have tested we find that onion shreds, carrot chips or flakes, and cabbage shreds require a 30-minute soaking period, while spinach and

turnip greens need no soaking. Longer soaking may shorten the cooking time but destroys much of the flavor.

Dehydrated vegetables required from 10 to 45 minutes cooking, depending on the amount of cooking done before drying and the stage of maturity of the vegetable used in drying.

More information is needed concerning best methods of storage to preserve color, flavor, and nutritive value.

Dried Meats

Dehydrated meat, formerly known as jerky or pemmican, is now of such importance that much attention and research are being centered on the possibilities of large-scale production. It has been estimated that approximately nine out of ten vessels can be released for other purposes if dried meat is shipped instead of fresh. Yet there has been little demand for commercially dehydrated meat and until recently no interest in its palatability. The Bureau of Animal Industry is now trying to develop meat dehydrating methods which will produce a palatable food, and the Bureau of Home Economics is co-operating by conducting palatability tests.

Dried Eggs

Dried eggs are not a newcomer on the market, but the dried egg industry is rapidly expanding, and large amounts are being used for the Army and for lend-lease shipment. Eventually dried eggs will be available for home use.

Their food value is practically equal to that of shell eggs. They keep better in the dried form, weigh less (one pound is equivalent to three dozen liquid eggs), take up less space, and do not break when transported. However, a given weight of a dried egg product will not always yield the same volume measure. In the Bureau of Home Economics we weighed and measured 57 samples of dried egg powder and found a variation of from 5 to 9 grams per tablespoon, or from 80 to 144 grams per cup.

Dried eggs are now available in three forms: whole egg, egg white, and egg yolk.

As with any other product, dried eggs can be no better than the original quality of those used for drying. Our Bureau has found a wide variation in the palatability of the finished product. However, during this last winter a panel of fifteen judges found great improvement in samples from 58 drying plants.

The eggs for the test were scrambled according to a standardized procedure. Since so much of our dried egg is sent to England, the judges used a scale of flavor evaluation previously developed by a British panel. The different grades in the British flavor scale were represented in the samples from the 58 plants and were used to standardize the tastes of our judging panel. Of the samples tested, 45, or 78 per cent, were within the limits of fresh quality, 12 were within the limits of cooking quality, and only one sample was rated definitely unpleasant.

A study on "the effect of storage at various temperatures ranging from 0°F to 110°F for various lengths of time on the cooking quality and flavor of dried eggs" is in progress. Although data have not yet been summarized certain observations may be worth mentioning.

These samples vary in their keeping ability. To measure their baking quality, emulsifying ability, coagulating power, and palatability, we prepare scrambled eggs, plain cake, popovers, mayonnaise, and baked custard.

At the highest storage temperatures, the quality of the eggs deteriorates quickly. A noticeable difference in the finished products is found after one week of storage. The eggs retain good quality and flavor at the lower temperatures for several months. Just how long we do not yet know.

As the eggs age they become dull and darker in color. When scrambled, the flavor is poor and the consistency grainy rather than creamy; mayonnaise will not emulsify; popovers have poor volume; baked custards are too soft and a thick crust of dull dark yellow color forms on the top. An "off" flavor becomes noticeable in all of the products, but shows up last in the cake. The volume of the cake does not become poor until the flavor is noticeably bad.

The concentrated odor of egg should not be confused with "off" odors. So far, however, we have not discovered any correlation between odor and flavor. Sometimes eggs that have had a distinctly disagreeable odor have been scored as perfectly satisfactory when they have been prepared for eating. Perhaps some of the substance responsible for these odors volatilizes when heated.

Until further information is available regarding methods of storage, we advise keeping dried eggs in a covered container in a cool or preferably cold place.

To reconstitute dried whole egg, we use two tablespoons of egg and an equal amount of water as the equivalent of one fresh egg. However, in baked products dried egg can be satisfactorily used if added to the other dry ingredients.

Dry Skim Milk

Using dry skim milk is a good way to improve the nutritive value of low-cost meals or, indeed, of any diet. Although cool storage is preferable, dry skim milk can be kept several weeks without refrigeration if kept tightly covered.

When added to cereals and bread puddings, biscuits, and muffins, the powder can be mixed with the dry ingredients. For liquid products, such as beverages, soups, sauces, and gravies, or in scrambled egg or custards, it is best mixed to a fluid by adding water. Three and one-half ounces ($\frac{7}{8}$ cup) of dry skim milk with $3\frac{3}{4}$ cups of water in nutritive value equals about one quart of fresh skim milk. However, for greater convenience in remembering and measuring, 1 cup of powder can be used for each quart of water. After it is reconstituted, it sours just as does any other fresh milk.

Dried Soya Products

Soybeans are rich sources of high quality protein, fat, and calcium. Dry heat markedly increases the biological value of the soybean protein. Dry soybeans are rich in B_1, have a fair amount of riboflavin and varying amounts of vitamins A and E.

Soya flour that has been processed with a moderate amount of heat sufficient to debitter the flour and mildly cook the protein has been shown to contain greater amounts of thiamin, riboflavin, pantothenic acid, and biotin than does wheat flour. The thiamin content of soya flour depends to a considerable extent on the amount of heat used during processing. A toasted soya flour will have a low B_1 content and in some cases none. Unheated soya flour may contain as much as 400 to 500 International Units of B_1 per 100 grams.

Many of these soya products are available in 100 pound lots at prices ranging from six to seven cents a pound, but in small size packages are usually found only in specialty stores and at too high prices.

The need for more protein food has caused an increase in the demand for soybeans. Improved methods of processing and the new forms available as grits and flakes, as well as the meats and flour, present great possibilities for adding this concentrated form of food to our staple foods, especially for low-cost diets.

Soya flour or grits combined with dry skim milk and precooked legumes and seasonings has for some time been used for the school lunch program (chiefly in soups) and for lend-lease shipment. In our Bureau we have tested several hundred soup mixtures. We have prepared bread, biscuits, and muffins in which up to 20 per cent soya flour was used. We have added soya flour and grits to meat cakes, meat croquettes, and meat loaf to add to the protein value and reduce the cost of these meat dishes. We have experimented briefly with the use of the grits in hot cereals and in products made with corn grits and meal.

Although this work is decidedly in the experimental stage, it has advanced far enough to show the possibilities of soya products.

Peanut Flour and Grits

The use of peanuts is being extended from the popular peanut butter and as bought from the "peanut vendor" to the more concentrated form of flour and grits. These protein concentrates have been used to a more limited

extent than have the soya products although, in general, their development follows the same trend as does that of soya products. Now, with increased peanut production and improvement of the peanut products, peanuts will also be used to help improve the food values of some of our dishes.

We have used peanut flour with grits in concentrated soups and by itself in baked products such as biscuits and cookies. The characteristic peanut flavor is lost in these dishes.

Dried Soups

Not such a long time ago soup was more or less just a meal starter, but with such important jobs to do as helping to feed school children, refugees, prisoners of war, and our allies, it must contain as much nourishment as possible. The cost must be low, the soup must be palatable, it must keep well, and take up but little space in shipment.

To these ends, combinations of concentrated foods have been worked out using soya flour or grits, or peanut flour or grits, or soya and peanut flour or grits combined, dried skim milk, and precooked legumes in meal form with appropriate seasonings.

These soups so high in food value may be used merely by adding water and bringing the mixture to the boiling point, since all of the products are precooked. Or, because they are bland, these soups may be used as a medium for bits of cooked salt pork, bacon, tomatoes, or other vegetables to modify the flavor and make it please different tastes.

Sugar Substitutes

The present sugar situation focuses attention on other forms of "sweeteners." Dextrose, or corn sugar, and enzyme-converted corn sirup are now available in quantities suitable for institution or other commercial uses.

In our experimentation we have found that 25 per cent of the sugar (cane or beet) in any product may be replaced with dextrose, which is about half as sweet by measure as sugar, and two-thirds as sweet by weight.

Dextrose may be used as the only sweetening in beverages, puddings, custards, and sauces, but twice as much dextrose as sugar is required. If the cook wants to use part sugar, however, she may do so and then take double the remaining quantity in dextrose.

In baked products, such as cake or drop cookies, dextrose may be substituted for one-third the measure of sugar; in yeast bread, for all the sugar. Various proportions of dextrose, depending on the consistency desired, may be used in candies, icings, and frozen desserts. Fresh fruit may be sweetened with dextrose.

Enzyme-converted or high-conversion corn sirup contains a greater proportion of dextrose than does ordinary corn sirup and is sweeter by about 1½ times. For sweetening equal to that of sucrose, for custards, puddings, and sauces, 1⅓ times as much enzyme-converted corn sirup as sucrose, by measure, may be used. The liquids must then be reduced by one-fourth. In candy recipes this corn sirup may be substituted for the regular corn sirup with superior results. However, its flavor when cooked in certain products, such as cake and jelly, is not desirable even in as small a substitution as one-fourth.

Certain seasonings and flavorings to which we are accustomed may be scarce. Originality and imagination will have to help us in these circumstances. If we do a little investigating we may find many products in which herbs can be used instead of some of the well-known spices. Celery seed, nutmeg, mace, cloves, cinnamon, bay leaves, caraway seed, pepper, tumeric, dill, cardamom are all imported. However, our supplies of some of these spices will last for quite a while if used judiciously. American farmers can and probably will grow the following spices and herbs: anise, caraway, cayenne pepper, celery seed, coriander, cumin, dill, fennel, ginger, licorice, marjoram, mustard, paprika, sage, sesame, and thyme.

Dried fruit and the juice of fresh fruit add flavor to many dishes. Lemon rind and orange rind will be used more freely. Already one manufacturer has prepared a lemon extract which contains no alcohol and some have long made vanilla synthetically.

When it comes to coffee and tea, we may

have to learn to do without and use fruit juices and milk more freely.

Although changes in food supplies may necessitate further adjustments in methods of preparation and perhaps even in food habits, this nation can still be well fed.

All Goods Are War Goods Now

For price control and rationing to be completely successful, the consumer must help relieve the pressure on the limited supply of available goods. He must buy nothing he doesn't actually need. He must not buy above the ceiling price. He must remember that all goods are war goods now.

While government price control and rationing are the fundamental measures of protection for consumers, they are in no sense a substitute for voluntary action by consumers.

To make these programs operate as they should, consumers must know the provisions of the regulations. They must know that different stores have different ceiling prices, that some things are not price-controlled, that cost-of-living commodities must have prices posted. Consumers should be able to talk over situations with their retailers before making formal complaint to the local War Price and Rationing Board. Most stores are as eager as are consumers to keep down the cost of living, and retailers stand ready to co-operate as soon as they know what they must do.

You can be of great assistance to your government by helping your community know the provisions of price control with respect to exceptions, display of ceiling prices, sales receipts, complaints, and enforcement. The consumer division of the Office of Price Administration can furnish you materials and suggestions on how to help educate your communities.

There is one simple way to guarantee the success of price control, by making and keeping this pledge: "I will not buy anything above ceiling prices."—From paper by ROBERT SESSIONS, OPA, read by Ruth Ayres.

Saving Rural Home Equipment

PAULINE E. GORDON

Miss Gordon is specialist in home management and housefurnishings in the North Carolina Extension Service. Before going into extension work, she was head of the home economics department of the Tennessee Polytechnic Institute. She has also been active in various housing improvement programs for low-income families and in the rural electrification program.

A NEGRO woman in North Carolina last spring paid fervent tribute to the conservation program of the state's home demonstration agents and illustrated the practical way in which they had adapted their demonstrations to special community needs.

"The Lord surely sent you wif dat stove demonstration," she told the Negro home agent. "Jest as soon as I got home from de meetin', I 'most peeled my stove away where de grease and sut had settled. I took down dat pipe and cleaned it good, an' las' week when de church union was held you orter have seen de biscuits I cooked. Hit sure cooks good."

In communities with rural electric lines, North Carolina home demonstration agents demonstrated care and repair of electrical equipment; in other communities, where most of the families used either a cookstove or a heater, the agents emphasized the proper usage of this sort of equipment.

Preceding these demonstrations there had been thoroughgoing planning. The agricultural extension workers had realized that farm people would be faced with the problem of increased production and labor shortage because thousands of young farm men would be serving with our armed forces and that women would have to do more farm work. Longer hours could not be encouraged, for already farm people were working from sunup to sundown. Extension women therefore decided to include in their program educational material that would help farm women to organize their work better and eliminate those things which were less essential.

Training the Agents

In North Carolina Ruth Current, state home demonstration agent, called in outstanding home agents for a conference with state specialists and together they planned a program to stress conservation of household equipment—from the paring knife to the electric refrigerator.

The instruction of rural homemakers was aimed to give them an understanding of the full possibilities of the use of the equipment already owned, to show them how to take better care of equipment so as to reduce the need for replacement, and to help them repair broken and discarded equipment.

The change made in the household equipment program was more a change of emphasis than anything else. Miss Current set up group training schools for home agents to prepare them better to take the program to the farm people.

The first part of these schools was given over to study of materials used in household equipment—rubber, aluminum, tin, iron, copper, and enamels. Then came demonstrations on the care, use, and repair of equipment: rubber articles and parts—such as extension cords, hot-water bottles, wringers, and rubber strips in refrigerator doors; small household equipment such as pots, pans, knives; washing machines; stoves.

After each demonstration the group discussed methods of adapting it to their counties and modifications which would have to be made for the different communities in each county.

Field Work

The state-wide demonstrations of the conservation of household equipment which followed have been helpful to every home, from the one-room mountain hut to the electrically equipped plantation home.

Agents have held clinics for two pieces of household equipment—the sewing machine and pressure cooker.

Clothing specialists organized and scheduled sewing-machine clinics in 68 counties in February and March 1942, for which they secured the co-operation of a well-known sewing machine company.

In Macon County, in the western part of North Carolina, 63 women traveled over mountain roads, some for 30 miles, to bring their machines to the clinic. Two busy days were spent cleaning, repairing, and replacing parts. Machines were of many makes and types—a few in good condition, some fair, and many bad or almost hopeless. From each of the clinics, however, practically every woman went home with a machine which could do the sewing for her. Home sewing has increased greatly in North Carolina, due in large part to the shortage of fabrics needed for war purposes and to the desire to save. Women are remodeling old garments and using short lengths and scraps of material on hand.

At pressure-cooker clinics, pressure gauges were tested, and cleaning and care of pressure equipment were demonstrated.

A third clinic for the repair of small electrical equipment is planned. So as to reach the largest possible number of rural homes as speedily as possible, the home agents trained volunteer women leaders, both Negro and white, to become effective demonstrators of the proper care of equipment; through these lay leaders the number of rural families reached by the program has been multiplied many times.

The 4-H Clubs Today

America's all-out Victory program means that every boy and girl on the farm, as well as every adult, is putting everything else secondary to the task of winning the war.

Composed of 1,750,000 farm boys and girls, and organized in practically every rural community in the United States, the 4-H clubs are rendering an inestimable service. As part of the national 4-H defense program production projects were stepped up; health improvement was emphasized; safety programs were presented; thrift habits and good neighborliness were encouraged.

So well defined was this program that few changes had to be made when after Pearl Harbor it was revised and set up as the 4–H Seven Point Program for Victory. Club members everywhere participated in the Victory Garden drive so that today one sees everywhere in rural areas posters bearing the slogan: "We have a Victory Garden, do you?"

Next came the drive for collecting scrap metal. The Copeland 4-H Club of Surry County, North Carolina, alone collected 30,000 pounds of scrap.

During National 4-H Mobilization Week, April 5 to 11, 1,500,000 club members signed the Victory Pledge to produce food, practice conservation, buy war bonds and stamps, build health, keep on the alert, and be loyal always to their country. And more than a quarter of a million additional boys and girls joined the ranks of the 4-H Club.

This Army, 1,750,000 strong, is "On the March" to Victory!—Abstract of talk by FRANCES MACGREGOR, assistant state 4-H Club leader, North Carolina.

In Short . . .

Lay Leaders in Nutrition Education

MARGERY VAUGHN

Office of Defense Health and Welfare Services

Professional home economists and nutritionists in the United States today are too few in number to carry on alone the nutrition education that should be done. To extend the services of the professional group there must be a vanguard of willing volunteers. A volunteer lay leader can make a very real contribution by interpreting to her own group nutrition facts in terms which make them immediately applicable to daily life.

The United States Extension Service has long sought out, trained, and used lay leaders. Through its neighborhood plan it is now reaching families who had not previously responded to any educational program. The neighborhood leader is usually elected by the community in which he or she lives and is responsible for reaching the families in the neighborhood, particularly with wartime information. This neighborhood contact is the only method for reaching many of the families since they read no newspaper, do not have a radio, and do not attend meetings of any kind. Only five per cent of the families in the rural section of one southern state have telephones.

The neighborhood leaders have given freely of their time and are proud of the responsibilities entrusted to them. This type of leadership has been little used in towns and cities, but some similar organization might well be effective.

Housekeeping Aides

One of the very best examples of the successful use of trained, nonprofessionals is the housekeeping aides group. Between 40,000 and 50,000 housekeeping aides trained and supervised by the WPA have demonstrated how effectively nonprofessional staffs, taught and supervised by a home economist, can supplement the services of professional workers.

The WPA has established housekeeping clinics to which welfare agencies may send women for assistance in family living problems. The clinic may be in charge of a nonprofessional worker, but she must be under the supervision of a home economist who spends at least one day each week in the clinic. Seven Negro women, mothers of 43 children, came to one Ohio clinic one day each week for six months for instruction in meal planning and buying and cooking foods. The clinic was in charge of a home economist and a nonprofessional worker trained by her.

Let me give you some examples of what other lay groups are doing:

In a large city where there are inadequate feeding facilities for the defense and government workers a group of volunteer nutrition workers has set up an outdoor canteen which often serves as many as 28,000 lunches a day. They are rendering a real service in seeing that production workers in their community get enough of the right kind of food.

In a University Town

In a university town of 16,000, nonprofessional volunteers planned and carried through a program to reach every woman in that city. The nutrition group at the university provided their pre-service and in-service training. Their goal—to "Put Unity into Our Community"—was achieved, for all groups in the community, including the newspapers, cooperated with the committee. More than 2,000 women enrolled in the nutrition classes and attended regularly; attendance at meetings steadily increased.

Devices used to hold the interest of the group proved effective. Grocers donated food for the demonstrations and prizes through arrangements made by the Chamber of Com-

merce. At one meeting the names of those in attendance were put in a box, then the "lucky name" drawn received a dollar's worth of milk from her own dairyman.

A member of the professional group who helped train the volunteers said she felt very decidedly that the whole program had been very valuable, particularly since the women themselves had solicited the training and had then put their training into action. The program had reached a much better cross-section of the city than could have been achieved through any club, lodge, or church. The high school cafeteria reported more purchases of hot dishes; and the university dormitories, much better consumption of milk and vegetables.

Nutrition workers in a New England state, having decided that every homemaker should be informed regarding the nutrition yardstick, are distributing throughout the state an attractive card giving the essentials of a good diet on the front side and brief but fundamental nutrition facts on the back. Contributions from many state organizations paid the printing bill. Each local committee strives to see that no yardstick card is given out without an explanation which will make the value of its message so apparent that the homemaker will apply the information in planning her daily diets.

Some general conclusions as to the use of lay leaders in nutrition programs are: (1) The lay leader must understand the group she represents and be accepted by that group. (2) She should have approximately the same income and social status as the group with which she works. (3) Wherever nonprofessional workers are used, careful plans must be made for both pre-service and in-service training, and the professional group must assume responsibility for training the lay leaders. (4) Only by a combination of professional and nonprofessional services can the full potentialities of the nutrition program be developed.

How Many Understand Nutrition Terms?

HELEN C. HAMILTON

General Foods Corporation

Nutrition teaching is beginning to penetrate the homes of America, though much remains to be done. This was the conclusion reached after a survey of 3,000 housewives which was set up by an agency experienced in poll-taking and conducted by the public-relations and consumer-service departments of General Foods.

To the question "Which of these three is the best way to retain vitamins when cooking vegetables: cook them in smallest amount of water possible; use two cups of water to every cup of vegetables to be cooked; use no water; don't know," 45 per cent of the housewives said that cooking in the smallest amount of water possible is the best way to conserve vitamins, though only 20 per cent of the women knew any of the vitamins which were easily destroyed.

Yet too many women are still adding soda to vegetables in cooking: 13 per cent said they added it to string beans; a somewhat smaller percentage, to cabbage and peas.

Reasons women gave for this practice were: "Soda makes the vegetable more tender, preserves color, makes things cook more quickly, and makes the food more digestible."

To the question "How important do you consider vitamins in the foods you serve your family," 58 per cent replied "Very important"; 14 per cent, "Not important" or "I don't know." In 20 per cent of the farm families and 48 per cent of the city families one or more members were taking synthetically prepared vitamins. In lower-income homes vitamins were not considered so important as in homes having more money. City and small-town people were more interested than were farm people.

As to vitamin A, 93 per cent of the housewives interviewed said they had heard of it,

but 70 per cent of these had no idea what its functions were; 9 per cent knew it has something to do with eyes. More city women associated vitamin A in foods with color than did farm women perhaps because of the greater amount of publicity given to the subject in city than in farm papers.

Of housewives interviewed, 93 per cent said they had heard of vitamin B_1; 12 per cent of these thought it promoted energy, and only 10 per cent recognized wheat cereals, whole wheat, and enriched breads as good sources. Yet 76 per cent knew that whole wheat and enriched flours are richer in vitamins than is regular flour and said they preferred them though only 5 per cent of the families were actually eating more whole-wheat bread or whole-grain cereals than they did two years ago.

As to vitamin C, 87 per cent of housewives interviewed had heard of it, but only 13 per cent had an idea of some of its functions. However, their consumption of citrus fruits and fruit juices had greatly increased, and they were eating somewhat more tomatoes and tomato juice. Cabbage was one food disliked the most in families interviewed.

Vitamin D was unknown to 75 per cent of the families interviewed, only 18 per cent of them having any idea of its functions.

Riboflavin was unknown to 95 per cent; nicotinic acid, to 61 per cent.

The two chief sources from which the women interviewed said they obtained their nutritional information were radio (62 per cent) and magazines (60 per cent). Newspapers as a source of nutritional information ranked third (33 per cent).

City families are more aware of information on package labels than are farm families. Government nutrition publications are more popular with farm families than with city families, obviously showing the effectiveness of extension work.

One-third of the interviews of this survey were made in December before the government's nutrition program was well under way so that the results here reported are far from the last word as to nutrition knowledge. Nevertheless, it is undoubtedly still true that there is a pressing need for more practical, simple information on nutrition.

The United States government's 1942 presentation and promotion of eight basic food classifications, which women can quickly translate into "three squares a day," apparently is exactly what has been needed.

Some Problems of Nutritional Deficiencies

GEORGE R. MINOT
Boston City Hospital

Suboptimal nutrition should be prevented and, of course, not simply as a war affair. It can arise in other ways than from an improper diet. Indeed, it can arise when the diet seems, or is, adequate for normal individuals.

Disturbance of the gastrointestinal tract may be responsible because of such factors as faulty secretion or faulty absorption. Liver disease may impair metabolism. Sometimes one can argue that increased requirements are a cause of deficiencies; in other instances, that toxic substances act as inhibitors. In animals, the protection against the carcinogenic effect of "butter yellow" by dietary constituents, one of which is riboflavin and the other present in casein, has been established.

Nutritional essentials may be depleted. Protein may be lost by the kidneys, by effusion, or by suppuration. Iron deficiency is often caused by loss of blood.

Utilization of energy may produce significant vitamin deficiencies, especially in infancy and childhood owing to growth, and in pregnancy and the puerperium. Starvation is not to be confused with vitamin deficiency.

The clinical manifestations of nutritional deficiencies are easily precipitated in individuals already in the zone of partial deficiency by unaccustomed work or by increased metabolism. Mild, or subclinical or twilight-zone, deficiencies are common. Such conditions are difficult to detect and take many

weeks or, more often, many months to develop noticeably. They influence the general health and efficiency rather than produce any characteristic disease syndrome. Nutritional deficiencies are usually multiple in man, a phenomenon which is in contrast to conditions in the laboratory animal.

The Diagnosis

In general there are four methods for diagnosing dietary deficiencies: (1) analysis of the diet; (2) study of signs and symptoms of a deficiency, as revealed through history and physical examination; (3) laboratory tests; (4) therapeutic trial.

The dietary history is difficult to obtain and to evaluate.

The proper procedure is, of course, in every case of suspected nutritional deficiency, to determine as completely as possible the nature of the deficiency and the pathological and functional changes resulting from it. In this way, the clinician not only insures accurate, complete diagnosis and proper treatment but is able to contribute to our knowledge of the vitamins, minerals, and the like, as they relate to human health. Border-line states must be recognized and treated.

General symptoms are prone to appear first, such as fatigue, sluggishness, mental irritability. The effects of food on vitality are fundamental and far-reaching.

The great opportunity for the use of modern knowledge of nutrition is in prevention of unstable nutritional states. Prevention is simpler and vastly more economical than treatment after bodily defects have occurred, and adequate nutrition is one of the first lines of defense of the nation.

Food Preservation

ESTHER L. BATCHELDER
U. S. Bureau of Home Economics

The best method of preservation in each home situation depends upon the food itself as well as upon the facilities available.

For the hardy vegetables and fruits, storage is a way of conserving the backbone of a nutritious diet without using tin, rubber, electricity, or other critically needed supplies. Much spoilage can be avoided if thought and care is spent on the proper kind of storage. Eggs too can be stored. Studies on various methods of shell treatment are now under way.

The canning method used makes a lot of difference in the amount of vitamin C that can be conserved for the winter diet. Meticulous following of every detail of the instructions in canning bulletins can keep spoilage to a minimum. One spoiled can in each housewife's dozen may not seem bad, but that means hundreds of spoiled cans in one village—perhaps enough to feed one of the community's unfortunate families. The community canning center should see that carelessness and ignorance have no opportunity to lower the effectiveness of the group's work.

Pickling, brining, and "krauting" are preservation methods in which an airtight seal is unnecessary. Nutritionists today assure us that pickles and krauts are easily digested and assimilated by healthy adults. The freezer locker is an excellent means of preserving foods in regions where it is available.

There are as yet many unanswered questions concerning the best ways of drying foods so as to preserve the flavor and nutritive value of the fresh product. Quite a bit of work has been done on commercially dried fruits, but about vegetables we know very little.

The best way to prevent loss of vitamins in either frozen or dried foods is to preheat them so that the enzymes which speed up vitamin loss are destroyed. The most common pretreatment is steaming or immersing in boiling water long enough to heat each part of each piece of the food to a temperature high enough to destroy the enzymes. Some loss of vitamins frequently occurs during pretreatment, but far less than in drying foods without pretreatment. Moreover it usually improves palatability.

Dried foods spoil faster at high temperatures

and in high humidity than at low. Material that is not quite dry enough deteriorates far faster than lots that are more thoroughly dried.

The conservation of fat presents special opportunities for war service. Shoppers would do well to let the butcher keep trimmings not needed for proper cooking of the meat itself or for flavoring other foods. Drippings should be strained into a can, covered, and kept cold. So treated, they should be used for home cooking whenever possible. Any excess of home-conserved fat, or any not usable for home cooking, should be turned in for war use as part of the fat salvage campaign. If the fat goes to the commercial plant, glycerine for explosives can be recovered.

New Business Jobs for Home Economists

GLADYS CURRY MORRELL

New York University

It seems likely that many of the more strictly business opportunities will come in the field of productive enterprise.

New opportunities may eventually open up for the institution foods major—new in the sense that a majority of these positions have been held previously by men. Perhaps before long metropolitan hotels will be seeking women in large numbers to work as food service directors and dietitians.

Journalism is a new field of opportunity for the younger home economist whereas heretofore practically all of this work has been done by home economists with considerable commercial or academic experience. Some jobs involving the rewriting or modernizing of a form already set up are not too difficult for the novice.

All indications are that the "plum" of the new business opportunities will go to those home economists who have strong science backgrounds, especially in chemistry, physics, and mathematics. Some foods and nutrition majors have looked longingly toward technical positions in chemistry even during their student days. Yet their better judgment has led them to major in a field which offered some vocational opportunity.

A household equipment major may have chosen her field because she had native ability in engineering lines but felt that her chances of getting an engineering job were not good. Now the need for these workers is so urgent that even partially trained persons are being accepted for positions.

With her background in science, the home economist is proving valuable as a worker in this comparatively new field for women. It is fairly easy for her to get further training after she has accepted a position because of the many new science courses being offered by colleges and universities through extension or evening classes to meet emergency demands.

We must admit that in some instances the best opportunities go to noncollege-trained workers because the employer is skeptical of the young college graduate's ability to adjust herself to working conditions where manual skill is a part of the job. Since the home economics major has had good training in how to plan her work and to use her hands effectively, I believe that she is not apt to be found wanting in ability to adjust herself to this type of position.

There is some indication that women accept routine with greater ease than men. Although this difference in temperament makes women preferable in a number of instances, especially for work involving repeated operations, the woman worker should realize that in order to prepare herself for advancement she must in general look beyond her own assigned job. While her adaptability to routine is definitely a virtue, she must not allow it so completely to control her outlook that it hampers her chances of advancement and consequently her chances of holding a position after the present emergency is past.

The Boston Meeting . . .

Overture to Action

The fall of Tobruk announced in great black headlines in the morning newspapers of June 22, 1942, brought a grim note into the panel discussion which opened the 35th annual meeting of the American Home Economics Association in Boston.

A. Drummond Jones, social scientist of the U. S. Department of Agriculture, served as keystone for this panel, which considered the part home economists could and should play in the war effort.

Behind Dr. Jones, against the dull gold of the wood-paneled walls, hung the portrait-in-oils of an elegant lady of another day, in sharp contrast to the 900 women before him, who were gathered to consider the impact of total war on a profession dedicated to the work of building better homes.

Panel Members

Four women were at his right down the long table, four to his left. They were Margaret Justin of Kansas State College; Mary L. Gillespie of the New Mexico Department of Education; Marianne Muse of the Vermont Experiment Station; Dorothea Nicoll of the Massachusetts Department of Public Health; Rose Cologne of Pennsylvania State College; Mrs. Weston Atherton, homemaker from Sagamore, Massachusetts; Charlotte Hein of Iowa State College, president of the college section of the department of student clubs; and Alice V. Keliher of New York University, who was to summarize the session.

It was a stimulating meeting in which suggestions were freely offered from the floor as well as by panel members. The wail of an air-raid siren midway in the panel's course, calling for a practice "alert," forced an intermission upon an absorbed crowd.

Avenues to Service

Ideas presented there were brought out time and again in smaller meetings later:

Home economists have a great opportunity to help people understand how vital is the part of each individual in the war program.

To teach nutrition courses is not enough. We must discover and use the psychological motivations necessary to get people to want to eat what they should. We must be humble, respect the families with whom we work. Some of them are doing a better job than we could do for them! We can learn much from laymen.

We must extend our educational programs even though budgets are cut. We should utilize college and high school students more for educational work and must move out into the communities with these students.

We must get community action to further our programs, co-operate with, not compete against, other groups. We must be flexible.

The postwar world will be vastly different from the world we have known, and we must anticipate some of the staggering problems of that new day. We need, as never before, to become students of the social sciences.

The Financial Situation

Annual meetings may be out for the duration and with them the tidy sums which they bring. (Exhibits alone usually net around $8,000.)

Results are: The AHEA will be financed during the next 12 months in part by drawing $8,049.50 from the surplus fund built up during the last few years, in part by an increase in memberships. Only thus can services to the state associations be maintained at a time when these services are more than ever needed.

"The USA has 75,000 home economics trained women," commented Gladys Branegan. "Yet only 14,781 are members of the AHEA. If each of us gets one new member our organization will increase much in its potentiality for service. And the income from memberships will be doubled." But the con-

servative budget committee drew its financial blue print on the assumption that memberships would increase 20 per cent rather than 100 per cent.

Mrs. Katharine Alderman in her treasurer's report as of May 31 announced that "there is promise for the present year to close with at least a small surplus."

Keturah Baldwin as business manager reported 499 more AHEA members this year than last and 187 more affiliated student clubs than in any previous year. JOURNAL advertising had brought in $8,918.43 by May 31 —nearly $1,000 more than had been anticipated; subscriptions to the JOURNAL had brought in more than $3,000 beyond expectations.

Publication Policies

Publication policies were radically changed by the executive board. The *Bulletin* which heretofore has been published to inform members of the business transactions of the Association will appear no more. Matter formerly published therein will go in somewhat abbreviated form into the JOURNAL.

Junior members who formerly received these business reports will get instead the convention issue of the JOURNAL and a spring publication. They can also get free the detailed annual report of Association business, which will be published as part of the October issue of the JOURNAL IF they write to the business manager for it by September 10.

The student club magazine is to appear five times a year if funds permit. Clubs are urged to subscribe for extra copies so that there will be one for every 20 members.

Program of Work

The program of work for the year has two points of emphasis, as the committee headed by Mrs. Helen Judy Bond declared: "A plan for immediate wartime action and the development of the basic values involved in a long-time program."

The program pledged home economists: to serve actively in the special fields for which they are trained; to keep informed upon and interpret to others the shifts in national and world conditions; to adapt their work to these shifting needs; to co-operate with other agencies in programs to improve personal and family life; to promote short-time investigations concerned with the welfare of the armed forces, factory workers, and the family; to develop in the state and local organizations well-rounded programs which will serve all groups; to support the AHEA's official publication, the JOURNAL OF HOME ECONOMICS, and help increase its effectiveness; to continue financial support of foreign students, especially those from the Americas; to study, interpret, and support legislation to improve family well-being; to encourage student clubs.

Some of the projects outlined by the divisions and departments are:

Family Relations and Child Development: to mobilize specially trained home economists for emergency care of children and help set up refresher courses for them; to organize courses to train girls and women as aides in child-care programs; to help state associations organize sections on family relations and child development, where none have been set up.

Family Economics: to secure and make available reports of effective wartime educational undertakings in family economics which would help improve wartime teaching; to continue the work of compiling a bibliography of research in family economics.

Food and Nutrition: to work with other national organizations to improve the nutritional status of the people; to ask state home economics associations to use their influence to get a nutrition speaker on programs presented by other organizations; to work with the American Dietetic Association to further the school lunch program; to continue work on "A Handbook of Food Manipulation."

Housing: to study defense housing and help set up standards for furnishings, equipment, and arrangement; to establish a clearinghouse for suggestions to manufacturers as to changes

in design of household equipment; to decrease home accidents; to develop appropriate courses for a housing major.

Textiles and Clothing: to establish a yardstick for textile and clothing education; to publicize work in the field; to get each state association to appoint a state chairman of textiles and clothing so as to strengthen individual workers in the field; to co-operate with other groups dealing with the clothing problems of families and individuals.

Elementary and Secondary Schools: to work with the AHEA's *Consumer Education Service* to extend its use for teachers; to make available reports as to methods of teaching consumer education; to develop some co-operative project with the NEA and AVA.

Extension Service: to work for conservation of food supplies, clothing and textiles, household equipment, and human energy; to organize farm and home fire-prevention work.

Home Economics in Business: to reach a new audience, including men and boys, in the national nutrition program, in part through camera clubs; to sponsor Mend and Lend Clubs to conserve materials; to organize women trained in textiles and related fields for educational work with consumer groups.

Home Economics in Institution Administration: to stimulate interest in the school lunch program through work with the ADA and the American Restaurant Association; to get each state association to appoint a person to handle this phase of AHEA work; to participate in community, state, and national war work.

Homemaking: to increase membership; to promote higher standards of homemaking.

Research: to publicize more quickly research findings; to encourage more co-operative research; to promote short-time research work of practical value for speeding the war program.

Social Welfare and Public Health: to continue work on low-cost food and clothing allowances and on personnel standards.

Student Clubs: to help with at least one war project; to keep physically fit.

Centennial Dinner

The Ellen H. Richards Centennial Dinner Wednesday night, though it lasted four hours, had about it enough of the intimate quality of the family reunion to hold most of the diners and even the student club girls who had gathered in the balcony.

War stamps introduced a patriotic note. Corsages for the speakers were made from Cellophane, ribbon, and stamps. The favor at each plate was a stamp book with a 25-cent stamp therein. The new president, Jessie Harris, later expressed the hope that state associations also would use war stamps as favors at their meetings.

Tribute to Mrs. Richards

Grace MacLeod of Teachers College, Columbia University, in her "Tribute to Ellen H. Richards" recounted homey little incidents in the life of this pioneer home economist: her persistence in getting nutritious lunches into the Boston schools in spite of janitors who held concessions for feeding the children; her skepticism about women ever getting the vote because their clothes were so unbusinesslike—had no pockets; her insistence on her young women students' having a midmorning egg-and-milk drink each school day.

Nine of the diners had known Mrs. Richards. Among those who had been her students were Miss MacLeod and Alice F. Blood, who until recently was director of the School of Home Economics at Simmons College, and to whom Caroline Wilson—acting for the Massachusetts Home Economics Association—presented a life membership in the AHEA.

Gifts and Awards

Besides Dr. Blood, two others were given life memberships: S. Agnes Donham, who served as the Association's comptroller for 12 years, and Gladys Branegan, outgoing president. Miss Donham's was the gift of the AHEA; Miss Branegan's was a surprise birthday present from her mother and inspired the diners to sing "Happy birthday to you."

The sixth annual Borden award, presented

by W. A. Wentworth, went to five home economists who had co-operated in the study of mineral balances of college women on self-chosen diets. The $1,000 award was to be divided among the following: Hughina McKay, Ohio State University; Ruth Leverton, University of Nebraska; Margaret A. Ohlson, Iowa State College; Martha S. Pittman, Kansas State College; and Genevieve Stearns, University of Iowa. Miss McKay gave the brief speech of acceptance.

Convention Mosaic

Attendance at the Boston sessions was a pleasant surprise to all. Registration totaled 1,411 as compared with 2,710 at Chicago in 1941 and 1,684 at San Antonio in 1939. With the uncertainties of wartime travel, about 900 had been forecast.

Thirty-eight of the 50 affiliated Associations were represented at the annual meeting by their presidents or alternates, according to Ethelwyn Dodson, president of the California Association, who reported for the states.

Consensus of these, as expressed at the All-States Dinner and elsewhere, was that whatever meetings are held they should have well-rounded programs utilizing the talents of more members than usual, that in some cases sectional rather than state meetings might be advisable.

The state representatives urged having an early fall meeting and a vigorous drive for membership, encouraging student clubs, and keeping up to date the emergency file of home-economics-trained women.

If state treasurers see to it that each member when she pays her dues checks one department and one division as her chief interest, this information can be used by chairmen to strengthen their work.

The emergency registration of home economists by mid-June had reached 30,202 in the 32 states reporting, according to Lucile Reynolds, chairman of the committee. More than half the registrants were gainfully employed; more than a fifth, homemakers not so employed.

The 200 extension women who attended the preconvention session were intent on getting all possible aid for wartime programs. Ways of simplifying literature so as to give it most appeal, and effective use of the radio and the newspaper received much attention.

Thrilling reports were made of the fine work of neighborhood leaders throughout the nation. The final event was a puppet show about the twins Vita and Min, written by William R. Gordon, rural sociologist from Rhode Island, to spread the nutrition gospel.

The home economics in business session at Swampscott on Saturday, June 20, brought an attendance of 159. Five-minute reports by section chairmen that morning gave a panorama of the contributions members were making to the war program. Down-to-earth discussions of wartime conditions and of adjustments to them made the afternoon hours fly.

Student club delegates, 148 of them, spent much of their time considering what clubs could do to help win the war. They heard reports of work clubs had done in consumer information centers, in spreading nutrition information among milltown mothers and among Negro cooks, in converting sugar sacks into sports dresses, in driving farm trucks at harvest time. They urged signing the pledge: "I will not buy above ceiling prices."

Newly elected officers of the AHEA are: vice-president, Edith H. Nason, Syracuse University; treasurer, Marie Dye, Michigan State College. The new members of the nominating committee are: Claribel Nye, California Extension Service, *chairman*; Mrs. Helen Judy Bond, Teachers College, Columbia University; Christine Finlayson, North Dakota supervisor of vocational home economics; Katharine W. Harris, Cornell University; Wylle B. McNeal, University of Minnesota.

New Books . . .

Merchandising of Fashions: Policies and Methods of Successful Specialty Stores. By JOHN B. SWINNEY. New York: The Ronald Press Company, 1942, 397 pp., $4.

The author has had "many years of experience in training ambitious young people already in the merchandising business" and other students in various retailing courses. The book is written primarily for such students, but it would make profitable reading especially for teachers of consumer education and a useful reference to other home economists.

The point of view represented is that of the specialty store retailer. Subjects covered include the story of fashion, fundamentals of good design, garment construction, plans for garment retailing, buying fashion merchandise, sales promotion, consumer satisfaction, alterations, labor problems, and design protection.

Home economists should be particularly interested in the chapter on consumer satisfaction, which discusses causes of dissatisfaction with fashion merchandise, adjustment methods, chronic returns, informative labeling and advertising, and selected Federal Trade Commission Rules.—ALICE L. EDWARDS, *Mary Washington College.*

Education for Economic Competence in Grades I to VI: An Analysis of Courses of Study Illustrated with Sample Materials. By RUTH WOOD GAVIAN. New York: Bureau of Publications, Teachers College, Columbia University, 1942, 190 pp., $2.

This study should prove of value to all those concerned with the organization and development of economic education in secondary schools and colleges, as well as on the elementary school level. It includes an abundance of concrete material obtained from questionnaires, personal interviews, classroom observations, and the analysis of textbooks and of courses of study used in grade VI and below which have been published since January 1930.

Fifteen objectives stated in elementary courses of study were considered to have a bearing on economic competence but "not one of the curriculum bulletins examined contained all fifteen." Those most frequently appearing were the practice of thrift, conservation of material resources and property, a knowledge of business terms and practices, occupational orientation, ability to select and use consumer goods, and understanding of social-economic problems.

Over seventy-five topics accepted as significant for economic competence were found in the courses of study examined. These were in general courses and in courses for social studies, mathematics, and science. Many of these topics are familiar to home economists. Over a dozen were grouped under the major heading of home life in our community and occurred in 30 per cent of the courses studied. "Numerically the group is the second most important channel of education for competence in the elementary schools."

Mrs. Gavian is an experienced writer so that the form in which her study is presented is such as to aid the reader in easily recognizing the relationships and relative importance of the numerous topics considered and the resulting conclusions and recommendations drawn from the study.—ALICE L. EDWARDS, *Mary Washington College.*

Stretching Your Dollar in War Time. By RUTH BRINDZE. New York: The Vanguard Press, 1942, 197 pp., $1.75.

This book, Ruth Brindze's third one on consumer buying, aims to stimulate consumers to do careful, economical buying during the war and to conserve foods and other materials. She has tried to provide enough specific information to enable consumers to select and use commodities wisely. Chapter headings indicate types of commodities considered: rationing the food dollar, clothes for civilians, household goods, and automobiles—keep 'em rolling.

Miss Brindze has condensed into less than 200 pages a surprising amount of factual material gleaned from a wide variety of sources and recast in simple terminology for the consumer with little or no technical training. The critical reader will note some errors and may question certain interpretations, which sometimes cannot be readily checked since, as is customary in a book of this character, exact sources of information are seldom provided.

Scenes have shifted so rapidly, with war master of the stage, that certain regulations and situations

have radically changed since the author's final copy went to press, despite all her efforts to give up-to-the-minute information.

This demonstrates the necessity of looking to special announcements and the daily press, rather than to books, to keep us up to date on such matters. Despite this limitation, consumers will find this book easy and interesting reading and a source of many practical suggestions for improving their buying in a topsy-turvy world.—ALICE L. EDWARDS, *Mary Washington College.*

The Women's Trade Union Leagues in Great Britain and the United States of America. By GLADYS BOONE. New York: Columbia University Press, 1942, 283 pp., $3.

Readers will find Dr. Boone's book a vivid and richly factual portrayal of women's part in the history of labor unions and especially in the trade union movement. Although primarily a study of women's trade union leagues in the United States, it is broadened by the inclusion of a briefer account of similar leagues in Great Britain. Since women's trade union leagues from the time of their organization have had to face problems involved in the labor movement and, also, those related to the advancement of the economic and social status of women, many controversial issues of economic and social character receive attention in a history of the development of these leagues.

The author, an associate professor of economics at Sweet Briar College, has had contact, over a period of years, with the labor movement in this country and abroad. Happily this has enabled her to select and treat subject matter with seasoned judgment. Within this one volume, a sound historical background is provided for the study of some of the controversial economic and social issues of the present and of the years immediately ahead. Some of these, no doubt, will arise in part out of the present greatly increased employment of women workers by war and other industries.

We may approve or disapprove of the aims of the women's trade union leagues, but whatever our point of view, it is desirable to be informed on the objectives and activities of groups as vigorous and influential as the women's trade union leagues of the United States and Great Britain, which are so well portrayed by Dr. Boone.—ALICE L. EDWARDS, *Mary Washington College.*

How to Make Historic American Costumes. By MARY EVANS. New York: A. S. Barnes and Company, 1942, 168 pp., $3.

We welcome another costume book by Mary Evans. In this, she covers 16 American costumes from early Indian dress to the Civil War, inclusive. It is well illustrated with complete construction details, including patterns for the making of each costume. There are simple directions for selection and dyeing of inexpensive materials appropriate for costumes. A good bibliography and a complete index are included. This book would be valuable for school plays, pageants, dramatic organizations, and little theater groups. It is a book that one would enjoy owning.—MRS. DORA W. ERWAY, *Cornell University.*

101 Home Furnishings and How to Make Them. By LUCINA WAKEFIELD. New York: Harper & Brothers, 1942, 98 pp., $2.50.

The author, who has conducted a newspaper column on handicrafts and home furnishings, here presents 101 ideas for home accessories with illustrated directions. The title is misleading, as the book deals with home accessories rather than what is generally considered home furnishings. Most of the construction ideas are interesting, but the decorative designs are not of the highest standard. Some of the structural ideas could be used for making inexpensive things about the house.—MRS. DORA W. ERWAY, *Cornell University.*

Marriage and Family Life. By GLADYS HOAGLAND GROVES. Boston: Houghton, Mifflin Company, 1942, 564 pp., $3.

In her interpretation of the effective factors in successful marriage and family life, Mrs. Groves has brought together the most pertinent contributions of the medical sciences, psychology, mental hygiene, sociology, and home economics.

The book is divided into four parts. Part I, "Family Background of the Individual," explores the importance of the parents' relationships, their attitudes toward parenthood, the individual's experiences in infancy, childhood, and adolescence, and his relationships outside of his own home. Part II, "The Individual Prepares for Marriage," discusses the meanings of marriage, of courtship, of engagement, and society's stake in marriage. Part III, "Being Married," outlines personal adjustments, financial arrangements, husband and wife roles, the more significant of the modern risks, and the role of the marriage counselor.

Part IV, "Cases," consists of brief sketches of situations brought to the author's consideration in her experience as Director of Marriage and Council, Inc.

These are arranged and numbered according to the text of the other parts of the book and furnish discussion material for group or classroom work. In the appendix is a bibliography of source material and a section giving questions for discussion and topics for reports. The book is suitable as a basic text for both short and more intense courses, for adult groups, or for senior high school and college classes. The index is adequate.—MRS. LYDIA ANNE LYNDE, *U. S. Extension Service.*

Christianity and the Family. By ERNEST R. GROVES. New York: The Macmillan Company, 1942, 229 pp., $2.

This little book is "a plea to the Protestant ministry for a more practical, understanding interest in the family and a greater appreciation of its relation to Christianity."

Thesis of section one is "that Jesus recognized this alliance that should be maintained between the family and the church and that he made use of family experience and its vocabulary as a means of unfolding his message." Section two shows the minister that a sentimental attitude toward domestic relations and spasmodic efforts to conserve the family should be replaced by a definite, intelligent program.

It also tries to guard him from hazards associated with pastoral services as a counselor.—H. P. H.

If You Please: A Book of Manners for Young Moderns. By BETTY ALLEN and MITCHELL PIRIE BRIGGS. Chicago: J. B. Lippincott Company, 1942, 239 pp., $1.40.

Bright in style, attractive in format is this successor to "Behave Yourself!" which the authors wrote five years ago. Photographs and amusing sketches help to drive home points as to social behavior of young folk.—H. P. H.

Annual Review of Physiology, Vol. IV. By JAMES MURRAY LUCK and VICTOR E. HALL. Stanford University, Calif.: Annual Reviews, Inc., 1942, 709 pp., $5.

Twenty-three papers are collected into this volume, each giving the latest available information in the field treated, each written by an authority in the field, each with one or more pages of references under the heading "literature cited." Among subjects treated are: The Physiology of the Skin, The Digestive System, Electrophysiology, Metabolic Functions of the Endocrine Glands, The Physiology of Reproduction, The Pharmacology of Drug Addiction.—H. P. H.

Food Values in Shares and Weights. By CLARA MAE TAYLOR. New York: The Macmillan Company, 1942, 92 pp., $1.50.

This is a useful book for the teacher, dietitian, social worker, and others needing to calculate nutritive values of diets. It will be particularly well received by those who use the share system, as the first half of the book is devoted to giving nutritive values in shares.

In the last half the author has presented food values in terms of weight for making calculations when it is not helpful to use shares and for those who wish to compute nutritive values directly.—BERNICE L. KUNERTH, *U. S. Bureau of Home Economics.*

Minerals in Nutrition. By ZOLTON T. WIRTSCHAFTER. New York: Reinhold Publishing Corporation, 1942, 175 pp., $1.75.

This book gives a popular presentation of the role that minerals play in the human body. There are numerous references to original work and several X-ray photographs contrasting normal conditions with the effects of a mineral deficiency.

The book contains interesting information, but it is doubtful if much of it will be helpful to the lay reader as many paragraphs tend either to oversimplify the facts or assume the reader to have considerable scientific background.—BERNICE L. KUNERTH, *U. S. Bureau of Home Economics.*

300 Sugar Saving Recipes. By HARRIET H. HESTER. New York: M. Barrows and Company, Incorporated, 1942, 181 pp., $1.50.

Harriet Hester is director of women's programs for radio station WLS in Chicago and has tried out the recipes here collected both on her own family and on families of homemakers who listen to her daily broadcasts.

The following subjects get a chapter each: baking without sugar, sugarless desserts, sugarless vegetable dishes, salads and salad dressings, quickly prepared meals for a busy day, economy meals, using leftovers, canning and preserving, the school lunch box, and balanced meals (four concise pages).—H. P. H.

Abstracts . . .

EDUCATION

Contributed by Johnie Christian, Texas State College for Women

Helping children to live, M. F. SEAY. *Progressive Educ.* **19,** No. 4 (April 1942), pp. 195–199.

A year ago visitors in a certain rural school in the South observed the children learning lessons unrelated to their real problems of living. They were reading *The Canterbury Tales* and were faced with such problems as sanitation and malnutrition.

These same observers recently visited this same school and found pupils reading from such books as *We Make a Garden* and *Let's Learn about Goats.* The new instructional materials had been especially prepared for use in such schools and had captured the interest of both pupils and teacher. The children were learning to solve their own problems.

The teachers had been forced by the economic depression of the '30's to review their educational practices in the light of current economic conditions; today they are continuing this appraisal and trying to make the curriculum practical.

Their assumption is that any program designed to enrich life can have an educational approach and that schools can be improved by focusing their programs upon vital needs of the community, thus leading ultimately to improvement of the economic condition of families.

The experiment is being evaluated in the areas of achievement, intelligence, and attitudes. Dietary practices, production and consumption of food, and health are being checked by clinical examinations.

Findings to date show that interesting, instructional materials dealing with important economic problems can be prepared by teachers and graduate students and that such materials are enthusiastically received by teachers and pupils.

Community action and the school, L. A. COOK. Ohio State University Press (1941), 10 pp.

An understanding of the community is an important factor in maintaining morale. Community action originates when enough members become aware of problem situations. In the process, research interpretation, publicity, cooperation, and pressure are needed. Leadership is essential for the stimulation and development of any community program.

Five factors are important in such a program: good first contacts, adjustment of the program to community patterns, knowledge of reality, utilization of able persons, democratization of planning through making each person feel that his suggestions are valued.

Education under dictatorship and in democracies, J. F. ABEL. U. S. Office of Education, Education and National Defense Series, Pamphlet No. 15 (1942), 19 pp.

World-wide acceptance of the principles of democracy seemed well assured a few years ago. Many nations were given autonomy; groups totaling about 20 millions were placed under tutelage until ready to take over their own affairs; and the League of Nations was formed to aid in eliminating war and democratizing the world and in many ways to improve living for the masses all over the world. The World War tended to glorify the common man, the Tommy, the doughboy, and the unknown soldier.

Following this lead the secondary school along with other agencies moved in the direction of more democratic practices. Efforts were made to reduce illiteracy, to expand technical and vocational education, and to extend suffrage.

When threats to democracy, such as the rise of Fascism, began to appear, we ignored them. The education in a Fascist, Communist, or Nazi state reflects the philosophy back of the state and seeks to enjoin mental uniformity. It is the task of education in a democracy to maintain an atmosphere where children and teachers shall be free, where books shall be uncensored, and where courses of study shall be suited to the needs of children.

The responsibility of education in wartime, E. O. MELBY. *Frontiers of Democracy* **7,** No. 60 (March 15, 1942), pp. 176–177.

The Versailles treaty ushered in a period of moral relaxation. In our domestic life we became

grossly selfish and indulgent. So complete was the moral lethargy that all over the country workers feared their bosses; and teachers, their trustees and administrative superiors. Teachers sought to avoid controversial issues through being "impartial."

The democratic world appeared to lose its powers of analysis and appraisal and was dead drunk with selfishness and class interest.

Pearl Harbor marked the collapse of an era and ushered us into the world conflict for freedom and human values. The job that confronts us is threefold: (1) Win the war; (2) develop spiritual readiness for the war and postwar periods; and (3) make ourselves effective in democracy's problems.

To build a morale, we must have something in which we believe, something to live for and by. But if we return to the old absolutes, we shall have something undemocratic. Democracy carries its own antidote against absolutes—open-mindedness, fairness, respect for truth, and conclusions based upon facts.

To rebuild the world will cost as much as the war itself. Except as we plan expertly and sacrifice generously in every field, we shall have misery and chaos. Our job during the war is to gather momentum, arrive at a clear perspective, and acquire convictions that will carry us through the postwar period.

Children in the school must learn how to act through acting. We must arrange for participation in every possible endeavor, even in formulating the policies of the schools.

And our enemies must experience understanding at our hands. Our responsibility is to translate the democratic tradition into a living educational program. An educational program which breathes faith in all humanity and which by its own example personifies the search for truth is the only hope for the human world.

Homes to live in, E. OGG and H. SANDBANK. Public Affairs Pamphlet No. 66 (1942), 31 pp.

Housing conditions in America, long far from ideal, have grown worse with the present emergency; hence, it becomes imperative that we make the most of what we have.

Before furnishing any room one should think through all the uses to which the room will be put and consider all those who will use the space. The needs of children should take precedence. There are many combinations of needs such as for living and sleeping, for eating and studying. Furniture seldom used is often a hindrance to good living.

Storage space often can be improvised or improved upon by adding shelves and rods at more than one height. It is helpful to make a check list of all articles to be stored and plan storage according to the kind of article, size, and place it will be used most often. Acceptable furnishings can be made by amateurs, as this illustrated pamphlet shows.

What can I do, H. KEMPFER. *Nation's Schools* 29, No. 6 (June 1942), pp. 18–19.

Millions of teachers are asking just this question. Many are donating time to dramatic tasks, such as fighting fire, donating blood, and locating aircraft; yet the use of professionally trained people in such capacities may be poor economy.

Teachers like others should utilize energy where it will count the most. It is proposed that teachers have a greater responsibility in preparing for the peace and postwar conditions. Two world wars in one generation are an indication that the first was in vain.

We need action but we also need discussion. Teachers are obligated first to clarify for themselves the basic meaning of democracy. This may come through thought, study, and discussion. Second, teachers can assist democratic processes in operation. Adults must be reached as well as youth, for they are helping to lay the plans for a better world.

It is dangerous merely to await orders even in this emergency. In a democracy all avenues must be kept open and discussion must go forward. Democracy is revolutionary in that it requires continual re-creation as a method of existence. The old ideals of freedom and justice are no longer adequate, and a peace formula based upon these can only be a monstrous delusion. Without an understanding of this among the masses, we shall have fought in vain.

FOOD ECONOMICS AND DIETARY REQUIREMENTS

Contributed by Verz R. Goddard and Bernice L. Kunerth of the Food Economics Section, U. S. Bureau of Home Economics

Geophagy (dirt eating) among Mississippi Negro school children, D. DICKINS and R. N. FORD. *Am. Sociological Rev.* **7,** No. 1 (Feb. 1942), pp. 59–65.

To determine the prevalence of dirt eating among rural Negro school children above the third grade in Oktibbeha County, Mississippi, children were asked to write "yes" and "no" after the names of foods according to whether they had or had not eaten them in the past 10 days. The list included some of the common foods and both "clay" and "dirt." About 25 per cent of both boys and girls reported that they had eaten dirt during the period specified.

Hookworm is often given as a cause of geophagy. Due to the nature of the soil, hookworm is not present among the natives of the county in which this survey was conducted.

The authors believed these children to be from families of relatively high socioeconomic status so that data would not necessarily indicate the extent of dirt eating among all Negro children.—B. L. K.

Studies of liberal citrus intakes, C. S. LANFORD. *J. Nutr.* **23,** No. 4 (April 10, 1942), pp. 409–416.

The ability of the human body to utilize large quantities of citric acid from fruit juice was studied by balance experiments and the most recent analytical methods. Nine women and 16 men between the ages of 22 and 37 years and on basal diets low in citric acid were given a test dose of the acid in the form of 1.8 liters of grapefruit juice within 10 hours.

The citric acid of the grapefruit juice was determined and also that of the 24-hour urine samples before and after the ingestion of the juice. The results indicated that on the average at least 98 per cent of the citric acid was utilized. Further evidence of high tolerance toward citric acid from fruits was the absence of subjective symptoms and the shift in the pH of the urine toward alkalinity.

The author concludes that in its availability to the body as a source of energy citrate compares favorably with the better-known and more abundant nutrients.—V. R. G.

Low-priced milk and the consumption of dairy products among low-income families, Washington, D. C., 1940, H. K. STIEBELING, S. F. ADELSON, and E. BLAKE. U. S. Dept. Agr. Circ. No. 645 (May 1942), 28 pp.

Pasteurized bottled milk at 5 cents a quart was made available August 12, 1940, to persons certified as eligible in the District of Columbia. Information was obtained from them concerning the consumption of milk and milk products during 1-week periods before and after the inauguration of the plan—first in May and June and later in October and November.

The maximum quantities of milk that could be purchased under the program allowed one pint daily for anyone under 17 years of age, for expectant or nursing mothers, and for unattached persons, with one-half pint daily for all others.

During the first month only about one-fourth of the eligible group took advantage of the plan; but by March, seven months later, almost three-fifths were participating.

The 102 white families who were interviewed both before and after the program was begun increased their weekly purchase of milk nearly threefold, from 0.98 to 2.89 quarts per person. The number of families buying milk increased about 40 per cent.

The 219 Negro families who were interviewed in both periods nearly quadrupled the amount of milk they purchased per week—from 0.68 to 2.54 quarts. The number of Negro families buying milk increased about 56 per cent.

The average per capita consumption of milk in all forms—purchased and free—increased between the first and second survey by 62 per cent for white families, 84 per cent for Negro families, but for nonparticipating eligible families there was very little change.

The study shows the need of educating people further on the dietary value of milk. Only about half of the participants bought the maximum quantities allowed under the low-priced-milk program, and more than a fourth bought less than 75 per cent of their allowance.—B. L. K.

Food waste materials, a survey of urban garbage production, collection and utilization, W. H. STALTING, U. S. Dept. Agr. Bur. Agr. Econ., mimeo. publ. (1941), 16 pp.

Annual wastes in marketing and in home consumption of perishable farm products are enor-

mous. In fresh fruits and vegetables alone, wastes would amount to several hundred million dollars at retail prices.

These losses could be curtailed by reducing waste in marketing and in the home and by utilizing materials to the best advantage.

In 247 cities having a population of 25,000 or more, the average per capita collection of garbage amounted to approximately 302 pounds per year. On the average about 26.5 per cent, and in some areas as much as 85 per cent, is used for hog feeding. Calculating the per capita garbage production for the remainder of the United States urban population to be of the same proportions as in the cities studied, and assuming that all could be used for hog feeding, the maximum output of pork and lard from garbage-fed hogs would be around 200 million and 56 million pounds, respectively. This would be about 2 per cent of the amount of pork slaughtered in 1940. Maximum potential possibilities of using garbage for hog feeding could never be reached because in some regions it would not be feasible for sanitary reasons.—B. L. K.

The relationship between food habits and problems of wartime emergency feeding. Committee on Food Habits, Natl. Research Council, Mimeo. Publ. (1942), 11 pp.

The committee on food habits of the National Research Council has prepared a set of recommendations for handling problems arising during wartime emergency feeding.

To maintain good relations between different regional, national, and racial groups during the war will be a major problem. Differences in food habits, bound up as they are with emotions of disgust and repulsion, form a focus of danger in the inter-relationships between groups of different cultural backgrounds.

It is best to set up feeding patterns which do not offend any group rather than attempt to cater to the preferences of each group. The basic foods prepared for emergency feeding centers should be cooked as simply as possible and the seasoning and sauces served separately. For instance, vegetables should be cooked with salt only; and butter, oil, or dressings should be served as side dishes so as to prevent rejection of the vegetables themselves.

A choice in food is a sign of being an adult in America; wherever possible some element of choice should be involved. Even in mass feeding, care should be exercised to make the meal a family affair to reduce the possibility of having children form gangs and break away from parental control.—B. L. K.

A nutrition survey of a small North Carolina community, D. F. Milam. *Am. J. Pub. Health* **32,** No. 4 (April 1942), pp. 406–412.

This survey carried out in a rural mill community included physical examinations, research on clinical history and food habits, a 7-day record of food intake, and a blood examination.

The daily caloric intake for individuals over 15 years averaged two-thirds of the recommended allowance but was similar to that of a group of technicians and doctors whose diet was adequate in other respects.

The ascorbic acid levels of the blood plasma were subnormal, being less than 0.6 mg per cent for 83 per cent of the group, less than 0.3 mg per cent for 61 per cent, and zero for 27 per cent. The average ascorbic acid intake was 23 mg. In the fall both the intake and the plasma levels were higher.

Vitamin A intake and plasma levels were at minimum normal levels. The thiamin and riboflavin intakes were about half the normal level for the white and below a third for the Negro population.

Adults received a daily average of about 0.5 gm calcium and 8.9 mg iron, and children about 0.6 gm calcium.—B. L. K.

FOOD UTILIZATION

Contributed by Lucy M. Alexander, Elsie H. Dawson, and Colleen C. Hambleton of the Food Utilization Section, U. S. Bureau of Home Economics

Facts about caffeine, theobromine in foods, P. W. PUNNETT. *Food Ind.* **14,** No. 3 (March 1942), pp. 52–53, 95.

The amounts of caffeine and theobromine in tea, coffee, "cola" type beverages and cacao products, including breakfast cocoa, baking chocolate, and sweet milk chocolate were determined. Sixty to 75 mg of caffeine were found in the average cup of tea. The amount of caffeine in a cup of coffee varied from 68 to 101 mg depending largely on the grind and the method used. The time during which the coffee is in contact with the water will also determine the amount in the cup.

The two "cola" beverages contained 6.5 mg and 9 mg caffeine per fluid ounce.

In the case of cacao products the amounts of caffeine and theobromine varied widely. Breakfast cocoa contained over 55 mg of theobromine in a 5-ounce cup and chocolate about 125 mg. The caffeine content, however, was small. A bar of milk chocolate contained about as much caffeine as a cup of tea or coffee and as much as from 301 to 439 mg of theobromine.—E. H. D.

Rapidly refreshing dehydrated vegetables, J. SUGIHARA and W. V. CRUESS. *Fruit Products* **21,** No. 8 (April 1942), pp. 239–240.

Experiments were conducted to determine how quickly dehydrated vegetables could be cooked without preliminary soaking. Refreshed vegetables which had been blanched before dehydration were found to be equal or superior to the unblanched in color, odor, and flavor. All the vegetables were blanched long enough to cook the products almost completely before they were dehydrated.

With the possible exception of the leafy vegetables the limiting factor for complete cooking was the rate of absorption of water. Upon dehydration the cell walls of the plant collapse completely and are injured so that they do not regain turgidity. The refreshed vegetables are then rubbery or mushy.

Pre-dehydration blanching greatly shortens the cooking period for dehydrated vegetables. Vegetables blanched long enough to be cooked completely can be refreshened by 15 minutes of cooking without presoaking. Enzymatic activity is significantly noticeable in unblanched vegetables soaked over night.—C. C. H.

Sugar saving: The use of alkalies to save sugar in cooking acid fruits, L. W. MAPSON and J. BARKER. *Chem. & Ind.* **60,** No. 36 (Sept. 6, 1941), pp. 661–663.

In a series of experiments with rhubarb, gooseberries, black currants, raspberries, plums, and blackberries, it was found that from 20 to 40 per cent of the sugar required to make the acid fruits palatable was saved by adding a small quantity of sodium bicarbonate either before or, preferably, after cooking. Chemical estimations showed that the addition of the suggested amounts of bicarbonate caused in general only small losses of ascorbic acid, namely, between 0 per cent and 13 per cent. Exceptions to this statement were the larger losses (20 to 25 per cent) which were observed with two varieties of fruit, that is, black currants and red currants when the bicarbonate was added before cooking. With these two fruits the losses were reduced to a low magnitude, that is, 0 per cent to 12 per cent, when the bicarbonate was added after cooking.

For most of the fruits, red currants, raspberries, damsons, plums, green gages, black currants, and rhubarb, the amount of bicarbonate recommended is from 0.3 to 0.4 gm per 100 gm of raw fruit (equivalent to half a level teaspoonful to a pound), but with gooseberries and black currants more (from 0.6 to 0.9 gm per 100 gm raw fruit) may safely be added. Excess will reduce the acidity too much and have a deleterious effect on flavor, ascorbic acid content, and color.—E. H. D.

Methods employed in expressing the consistency of plasticized shortenings, A. D. RICH. *Oil & Soap* **19,** No. 3 (March 1942), pp. 54–57.

This paper describes the methods used to determine the consistency, or plasticity, of shortening. By "plasticity" is meant the degree of pliability or the capability of a shortening to be molded or worked.

Most of these instruments express plasticity in terms of the depth to which a metal cone or needle sinks into the surface of the sample under definite prescribed conditions.

The Bloom Consistency Tester consists of a

hollow cylindrical ring attached to a plunger that works in and out of a second cylinder. The maximum pressure is reached when the product starts coming through the lower or first cylinder and is recorded as a measure of the plasticity.

One instrument is used on the product in the course of hydrogenation. It gives a clue as to the actual body characteristic to expect on the finished product.

The Plastic Range Index was developed from the use of the penetrometer. The index is equal to the equation:

$$PRI = 100 - \frac{\text{Penetration at } 98°F - \text{Penetration at } 70°F}{10}.$$

—E. H. D.

Palatability and histological changes occurring in New York dressed broilers held at 1.7°C (35°F), H. L. HANSON, G. F. STEWART, and B. LOWE. *Food Research* **7,** No. 2 (March–April 1942), pp. 148–160.

The object of this investigation was to determine some of the changes occurring in New York dressed broilers during storage at 1.7°C (35°F). For tests of palatability in relation to time of storage, Leghorn broilers were held for periods varying from 40 minutes to 118 hours before being eviscerated and cooked.

The birds were roasted at 150°C (302°F) until a meat thermometer placed in the thigh registered 85°C (185°F). Cooking time and cooking shrinkage were determined. Liver and gizzard were cooked in water.

A committee of judges rated the cooked breast, thigh, liver, and gizzard of each bird for tenderness, flavor, and other points of edible quality.

For histological tests microscopic studies were made of the muscle fiber and connective tissue of two breast and of three thigh muscles of the chickens, both uncooked and cooked. The data presented include cooking time; cooking shrinkage; palatability scores of breast and of thigh for aroma, flavor, tenderness, and juiciness; photomicrographs of breast and of thigh muscles, uncooked and cooked.

On the basis of palatability scores for breast and thigh, the authors concluded that aroma and flavor began to deteriorate after 40 hours' storage and continued as storage time was lengthened; that breast rapidly became more tender during the first 3 hours of storage; that thigh likewise became more tender on storage but less rapidly than did breast, 42 hours being required to make thigh as tender as breast became in 3 hours; that juiciness was not affected by storage period.

The authors concluded further that microscopic studies revealed changes in structure that appeared to be correlated with changes in tenderness of the muscles and showed also that uncooked fibers changed more slowly than did cooked fibers.—L. M. A.

Frozen eggs, J. G. WOODROOF. *Ice & Refrig.* **102,** No. 1 (Jan. 1942), pp. 62–64.

A series of baking tests were made to determine the effect of freezing on the baking quality of eggs. Three kinds of cake were baked: (1) angel food cakes made from egg whites, (2) gold cakes made from egg yolks, and (3) butter cakes made from whole eggs. The tests also included certain pretreatments of the eggs to determine the effects on the quality of the cakes. The cakes were judged by both men and women, using a score card for each cake.

Frozen egg whites were found to be highly acceptable for making angel food cakes. Gold cakes made from frozen egg yolks had a coarser grain and larger air holes, were lighter, more tender, and more moist than cakes made with fresh egg yolks. Butter cakes in which frozen eggs containing three per cent glycerine were used were superior in texture, rose higher, had more satisfactory grain, and were equally as good in other qualities as cakes made with either fresh eggs or frozen eggs without glycerine. Frozen eggs with from one to three per cent salt added markedly increased the flavor score of gold cakes and of butter cakes.—E. H. D.

The effect of glyceryl monostearate on the baking properties of cakes, R. DAUM, E. G. HALLIDAY, and W. F. HINMAN. *Oil & Soap* **19,** No. 2 (Feb. 1942), pp. 39–41.

The study was undertaken to determine the effect of glyceryl monostearate with several basic types of fats on the characteristics of plain cake. The experimental work included the baking and testing of cakes made both with and without a monostearate addition agent, using as shortenings butter, hydrogenated vegetable oil, a modified lard which was partially hydrogenated, an oleomargarine consisting of 100 per cent hydrogenated cottonseed oil with a saponification value of from 190 to 192. A commercial preparation of monoglycerides was also used as an improving agent.

In determining the effects of the addition agents on the characteristics of the baked products, the following measurements were obtained: judges' ratings for texture, flavor, and grain; index to volume, for an indication of both volume and lightness; compressibility measurements for softness and keeping quality; moisture absorption for eating quality and staling; and sand retention for size of grain.

The addition of glyceryl monostearate improved the volume of plain cakes made by a conventional formula. Neither the subjective nor the objective tests for texture, flavor, grain, and keeping qualities showed any important differences among the cakes baked with and without an addition agent. —E. H. D.

Nature of darkening of cooked potatoes, H. W. NUTTING and M. C. PFUND. *Food Research* **7,** No. 1 (Jan.–Feb. 1942), pp. 48–55.

In order to study the blackening of cooked potatoes, halves of pared tubers were boiled and baked and then cooled in an atmosphere of nitrogen. Halves of potatoes were also cooked in water to which various chemicals had been added. The corresponding halves were used as controls.

None of the potatoes cooked in oxygen-free water and then cooled in an oxygen-free atmosphere showed signs of blackening. All but one of the untreated halves blackened during cooling in air. The tubers that were baked, cooled, and pared in an inert atmosphere showed no blackening. As soon as the tubers were removed to the air, however, all but one blackened.

Blackening was markedly decreased or prevented by the use of cooking waters of pH 4.1 to 4.9, but a tough layer was formed on the outside of the tuber. Blackening was unchanged or slightly increased by the use of cooking waters of pH 8.4 to 10, but in such alkaline solutions some surface decomposition and browning occurred.—E. H. D.

Flavor transfer in refrigerated storage, E. C. CROCKER. *Proc. Inst. Food Tech.* (1941), pp. 195–202.

Foods of many kinds were stored uncovered for periods of several days under different physical conditions, after which they were examined for weight-loss, appearance, and flavor.

Observations also were made of pickup of odors from other foods present and of the absorption of food odors by Petri dishes of water, shortening, and mineral white oil.

Odoriferous foods were used as emitters of odors, and easily measurable chemicals were also exposed in bowl-type emitters. The chemical that was absorbed by the flat dishes of water or oil was measured quantitatively by titration.

The passage of food and chemical odors to absorbent foods or to water was found to be markedly influenced by the physical conditions existing in the compartment in which these were stored. Conditions that promoted evaporation of moisture from the food promoted evaporation of the flavor at the same time, by a kind of low-temperature steam distillation. Flavor-transfer is increased by air movement and low humidity.

The rate of pickup was found to depend upon the nature of both vapor and absorber.—E. H. D.

NUTRITION

Contributed by E. Neige Todhunter of the University of Alabama

The absorption of vitamin A in tuberculosis, B. B. Breese, Jr., E. Watkins, and A. B. McCoord. *J. Am. Med. Assocn.* **119,** No. 1 (May 2, 1942), pp. 3–4.

The absorption of vitamin A was measured for 25 supposedly normal adults and for 29 patients with active pulmonary tuberculosis. Blood samples were taken before giving concentrated fish liver oil as a source of vitamin A, and then 4, 8, and 24 hours after ingestion of the oil.

The blood was analyzed for vitamin A. The average increase in the vitamin A content of the blood was approximately twice as great in the normal as in the tubercular patients.

The patients with more severe symptoms of tuberculosis absorbed less vitamin A than those with mild symptoms; the more underweight the patients were, the less well was the vitamin absorbed.

Vitamin A requirements in the rat. The relation of vitamin A intake to growth and to concentration of vitamin A in the blood plasma, liver and retina, J. M. Lewis, O. Bodansky, K. G. Falk, and G. McGuire. *J. Nutr.* **23,** No. 4 (April 10, 1942), pp. 351–363.

The vitamin A content of the blood, livers, and retinas was determined for 164 weanling rats after being fed varying amounts of vitamin A.

With increasing intakes of the vitamin up to 25 units daily there was a corresponding increase in growth, but higher intakes gave no improvement in growth. The vitamin A content of the blood was directly related to the intake up to 50 units daily; increased feedings above this level had no effect.

There was no storage of the vitamin in the liver with less than 10 units daily, and storage increased with an increase in intake from 25 to 1000 units daily.

The vitamin A content of the retina was the same for rats receiving 2 or more units daily. During periods of vitamin-free diets the vitamin content of blood and retinas remained high. These findings suggest that the ability of the eye to adapt to darkness is not affected in the early stages of vitamin A deficiency.

The minimum requirement of 2 units daily or 20 units per kilogram for the rat are of the same order as found in other studies with infants.

The relation of liver stores to the occurrence of early signs of vitamin A deficiency in the white rat, S. Brenner, M. C. H. Brookes, and L. J. Roberts. *J. Nutr.* **23,** No. 5 (May 11, 1942), pp. 459–471.

Analyses of the tissues of young rats showed that the vitamin A stores were withdrawn from the liver in one week on a vitamin-A-free diet. Rats which had been fed high doses of vitamin A retained some storage even after 30 weeks on a depletion diet; the loss was rapid in the first eight weeks, amounting to about 90 per cent.

Vitamin A was found to be present in the blood and eyes of the rats, and small gains in weight were made even when the animals had no liver stores of the vitamin.

The value of dark adaptation as an indication of early vitamin A deficiency is questioned in the light of these findings. In the rat the blood values of vitamin A were found to be of little value as an index of nutritional status except in extreme deficiency or immediately following massive doses. The females stored more vitamin A and lost it more slowly than the males.

Comparison of vitamin A of liver biopsy specimens with plasma vitamin A in man, K. A. Meyer, H. Popper, F. Steigmann, W. H. Walters, and S. Zevin. *Proc. Soc. Exptl. Biol. Med.* **49,** No. 4 (April 1942), pp. 589–591.

The vitamin A content of blood plasma before, during, and after operation of 34 patients with various upper abdominal diseases was determined by chemical analysis.

Similar determinations were made on liver specimens of the same patients. No correlation was found between plasma level of vitamin A and liver content except that subjects who had high plasma levels had at least average liver storage.

Studies of the B vitamins in the human subject. V. The normal requirement for thiamine; some factors influencing its utilization and excretion, K. O. Elsom, J. G. Reinhold, J. T. L. Nicholson, and C. Chornock. *Am. J. Med. Sci.* **203,** No. 4 (April 1942), pp. 569–577.

Six women received a constant daily quantity of an experimental diet for from 28 to 120 days. Vitamin B_1 was supplied in an amount slightly greater than that calculated as adequate from

Cowgill's formula. Three of the women remained well, and three showed clinical signs of deficiency.

The authors concluded, therefore, that body weight was not the important factor in calculating requirement.

Three other women received a diet containing half the theoretical requirement of vitamin B_1 and showed characteristic deficiency symptoms in 23, 32, and 41 days. The urinary excretion of thiamin varied daily but was dependent on the intake and independent of body weight.

One subject who developed an infection had a lowered output of vitamin B_1 until the infection subsided when it returned to normal again.

The minimal intake of vitamin B_1 to prevent any deficiency symptoms is believed to be 651 micrograms daily.

Induced thiamine (vitamin B_1) deficiency and the thiamine requirement of man, R. D. WILLIAMS, H. L. MASON, B. F. SMITH, and R. M. WILDER. *Arch. Intern. Med.* **69,** No. 5 (May 1942), pp. 721–738.

A group of eleven white women, 23 to 46 years of age, active and healthy in every respect, served as volunteer subjects on a diet which contained about the same amount of vitamin B_1 as was provided by the "poor" diets reported in the survey of American diets by Stiebeling and Phipard.

The diets consisted of common American foods and supplied 0.22 mg of thiamin per 1000 calories; supplements of the other vitamins and minerals were provided.

Symptoms of deficiency were observed in one subject in 89 days, in three in 131 days, in five in 169 days, and in two in 196 days; however, abnormalities of behavior and attitude, lack of inclination to perform tasks, and increasing inability to make social adjustments to the group were observed in all subjects in from 8 to 12 weeks on the diet.

As the study progressed there were unmistakable changes in personality. All were irritable, depressed, quarrelsome, unco-operative, and fearful of misfortune. Anemia was observed in 5 subjects. The basal metabolism was also lowered, but weight was maintained.

The urinary excretion decreased in the first 30 days to a level of 15 to 30 micrograms of thiamin daily. Increasing intakes of vitamin B_1 were given to the subjects, and the excretion increased when 0.4 to 0.5 mg per 1000 calories was given.

This amount did not prevent irritability, poor appetite, and insomnia, and this amount is believed to be minimal. Intakes of vitamin B_1 greater than 1 mg per 1000 calories did not give any further improvement in health.

Mental and physical inefficiency preceded any other signs of deficiency. Activity, diet, and intestinal absorption influence the individual requirement for thiamin.

Influence of hyperpyrexia on ascorbic acid concentration in the blood, S. L. OSBORNE and C. J. FARMER. *Proc. Soc. Exptl. Biol. Med.* **49,** No. 4 (April 1942), pp. 575–578.

Fever was induced in 17 patients so that the body temperature was raised to between 104 and 104.5°F for 4 hours. The blood plasma ascorbic acid was determined before, during, and after fever treatment, 77 observations in all being made.

No significant change in ascorbic acid of the plasma was found to be caused by the induced fever.

The daily intake of ascorbic acid required to maintain adequate and optimal levels of this vitamin in blood plasma, M. L. FINCKE and V. L. LANDQUIST. *J. Nutr.* **23,** No. 5 (May 1942), pp. 483–490.

The daily intake of vitamin C which was necessary to maintain a blood plasma level of 0.8 mg ascorbic acid per 100 cc was found to range from 0.8 to 1.2 mg per kilogram for five subjects.

The amount required to maintain tissue saturation for three subjects ranged from 1.7 to 2 mg per kilogram of body weight.

Ascorbic acid excretion at known levels of intake as related to capillary resistance, dietary estimates and human requirements, T. LEVCOWICH and E. L. BATCHELDER. *J. Nutr.* **23,** No. 4 (April 1942), pp. 399–407.

Forty-five college women were studied during a survey period and during periods of controlled intake of vitamin C. On freely chosen diets calculated to be high in vitamin C the excretion of ascorbic acid never exceeded that of controls who were ingesting 50 mg of crystalline ascorbic acid.

This indicated that food as prepared and served is probably lower in vitamin C than is frequently estimated.

Studies of capillary resistance on two subjects indicated the possibility that another factor than vitamin C is necessary for maintaining normal capillary resistance.

When vitamin C was removed from the diet following a period of high intake there was a marked drop in excretion in the first 24 hours, after which a characteristic resting level was attained.

It was concluded that the minimal ascorbic acid requirement of fairly active college women is about 50 mg daily and that with a safety margin of 50 per cent the requirement would be 75 mg.

Vitamin C and wound healing. I. Experimental wounds in guinea pigs, M. K. BARTLETT, C. M. JONES, and A. E. RYAN. *New Engl. J. Med.* **226,** No. 12 (March 19, 1942), pp. 469–473.

Guinea pigs were maintained on diets containing varying amounts of vitamin C. Ten days after operation the pressure necessary to rupture an abdominal wound was measured.

Sections of tissue from the incision at the time of operation and later from the scar tissue were analyzed for vitamin C. The amount of vitamin C in the tissues varied with the dietary intake; a high intake caused a marked increase in vitamin C content of the scar tissue and adjacent muscle. A greater increase was obtained when the vitamin was given postoperatively than when given preoperatively.

When there was a high vitamin C content of the scar tissue the tensile strength of the wound was much greater than in tissues with low values.

Vitamin C and wound healing. II. Ascorbic acid content and tensile strength of healing wounds in human beings, M. K. BARTLETT, C. M. JONES, and A. E. RYAN. *New Engl. J. Med.* **226,** No. 12 (March 19, 1942), pp. 474–481.

Six subjects were studied for vitamin C content of the blood plasma and of small sections of skin and of tissue removed at the time of operation. Ten days after operation the tensile strength of the healing wound and the ascorbic acid content of the wound tissue were determined.

With plasma levels as low as 0.2 mg of ascorbic acid per 100 cc there was no interference with normal wound healing. In a subject who showed a plasma level of 0.09 mg per 100 cc wound healing was not normal; but normal wound healing was brought about by giving a high vitamin C intake during the healing period.

Possible ariboflavinosis in a premature infant, S. S. STEVENSON. *Yale J. Biol. Med.* **14,** No. 4 (March 1942), pp. 403–405.

A case is reported of a premature infant who showed symptoms believed to be ariboflavinosis on the thirteenth day of life. Riboflavin was given orally, 3 mg per day, and the lesions of the mouth cleared in 24 hours.

It is suggested that the demands for riboflavin are very great in the premature infant since growth is rapid and there is little body storage of the vitamin.

The effect of lemon juice on calcium retention, M. C. MALLON and D. J. LORD. *J. Am. Diet. Assocn.* **18,** No. 5 (May 1942), pp. 303–305.

Daily supplements of 5 cc of lemon juice were fed to 28-day-old rats receiving a basal diet of 1 part whole-milk powder and 5 parts whole-wheat flour. When 60 days of age, the animals were sacrificed and analyzed for calcium.

Comparisons were made with litter mates receiving the same diet without lemon juice. The lemon juice was found to be without effect on the retention of calcium in the young growing rats. This differed from results reported by other investigators using orange juice.

The interrelation of calcium and fat utilization in the growing albino rat, C. E. FRENCH. *J. Nutr.* **23,** No. 4 (April 10, 1942), pp. 375–384.

Young growing rats were fed synthetic diets equal in calories, proteins, minerals, and vitamins but varying in fat content.

Rats receiving diets containing 45 per cent fat grew at a slower rate. With 5 per cent fat in the diet the calcium utilization was 80 per cent and decreased moderately with 15 and 28 per cent fat and was lowered to 46.8 per cent when there was 45 per cent fat in the diet.

The utilization of calcium paralleled the acidity of the intestinal tract; a moderate amount of fat in the diet favored the absorption of calcium by maintaining a favorable degree of acidity in the intestine.

Magnesium requirement of the chick, H. J. ALMQUIST. *Proc. Soc. Exptl. Biol. Med.* **49,** No. 4 (April 1942), pp. 544–545.

On a diet low in magnesium chicks grew slowly for about one week, then growth ceased. When disturbed the chicks showed symptoms of tetany. The chick requires 400 ppm of magnesium during the first weeks of life.

Effect of magnesium deficiency on dentin apposition and eruption in incisor of rat. J. GAGNON,

I. SCHOUR, and M. C. PATRAS. *Proc. Soc. Exptl. Biol. Med.* **49,** No. 4 (April 1942), pp. 662–666.

Rats maintained on a diet deficient in magnesium (1.8 ppm) showed a delayed time of eruption of the incisors although the rate of body growth was not affected. The apposition of dentin decreased and in some localities ceased for a time.

Effect of manganese on calcification in the growing rat, C. CHORNOCK, N. B. GUERRANT, and R. A. DUTCHER. *J. Nutr.* **23,** No. 5 (May 11, 1942), pp. 445–458.

A high intake of manganese in the rachitogenic diets of rats was found to retard growth and to cause an increased excretion of calcium and phosphorus. The calcium and phosphorus assimilation was interfered with by the manganese. Low manganese intakes did not affect growth or bone calcification.

Studies on manganese deficiency in the rat, P. D. BOYER, J. H. SHAW, and P. H. PHILLIPS. *J. Biol. Chem.* **143,** No. 2 (April 1942), pp. 417–425.

Feeding varying amounts of manganese to rats which were born with low stores of manganese showed that when manganese was lacking growth was impaired. The reproductive organs were affected, and neither males nor females could reproduce when maintained on a manganese-deficient diet.

Contrary to reports of other investigators, no effect was observed on the ascorbic acid content of the tissues.

Intravenous nourishment with protein, carbohydrates and fat in man, D. E. CLARK and A. BRUNSCHWIG. *Proc. Soc. Exptl. Biol. Med.* **49,** No. 3 (March 1942), pp. 329–332.

A patient was maintained over a 17-day period by intravenous injection of protein in the form of casein digest, fat in the form of olive oil, and carbohydrate in the form of dextrose.

The patient remained well and no untoward effects were observed. This is believed to be the first recorded instance of a man being nourished in this way by the simultaneous injection of 3 primary types of foodstuffs.

Digestibility of national wheatmeal, K. A. KREBS and K. MELLANBY. *Lancet* **1,** No. 11 (March 14, 1942), pp. 319–321.

National wheatmeal, or 85 per cent extraction of wheat, was compared with white flour, or 75 per cent extraction, in "digestibility" trials on six subjects.

An average of 94 per cent of the dry matter and 89 per cent of the nitrogen of the wheatmeal were digested as were 97 per cent dry matter and approximately 91 per cent of the nitrogen of the white flour. The difference in digestibility of the two kinds of flour is considered to be small.

Biological value of the proteins contained in wheat flours, H. CHICK. *Lancet* **1,** No. 14 (April 4, 1942), pp. 405–407.

Whole meal (100 per cent extraction), national wheatmeal (85 per cent extraction), and white flour (73 to 75 per cent extraction) were fed to rats in amounts to supply 12.5 per cent protein in the diet.

Growth was greatest for those receiving whole meal and least for those receiving white flour. The biological value of proteins in the different flours increased with the per cent extraction.

The coefficient of digestibility of the proteins was greatest for the white flour and was 6 per cent and 3 per cent lower for the whole meal and national wheatmeal respectively. It is considered that the greater nutritive value of the whole meal proteins more than compensates for the lower digestibility.

INSTITUTION ADMINISTRATION

Contributed by Kathleen Cutlar, Mary Lou Garmong, Francis Kimble, Helena Leahy, and Marion A. Wood of the New York State College of Home Economics, Cornell University

Training the pantry maid, S. PETERSON. *J. Am. Diet. Assocn.* **18,** No. 5 (May 1942), pp. 315–316.

Present conditions require particular attention to unskilled members of a hospital's staff, since their training and stability depend almost entirely on the efforts of their employers.

Criteria of success for the pantry maid are: volume and quality of work accomplished; number of complaints by both patients and maids; and the stability of group membership or labor turnover. The efficiency, health, and happiness of the employees are contributing factors to their success.

Aids to training are: clear-cut written instructions as to work schedules, menus, recipes for food prepared on the floors, and instructions for cleaning; weekly classes to outline briefly general policies, to give specific directions for various phases of the work, and to receive and discuss suggestions made by the maids.

Health education to include diet and hygiene and help with personal budgets are a part of the program for producing satisfaction among employees.—M. A. W.

Modern emphasis on personnel training, A. M. MACFARLANE. *J. Am. Diet. Assocn.* **18,** No. 5 (May 1942), pp. 312–313.

Present needs for better-trained and more efficient workers indicate the necessity of more effective training programs.

Vocational training courses that meet definite standards may receive appropriations through the Smith-Hughes and the George-Deen Acts of Congress and through federal grants supplemented by state and local government funds. The courses must be free and must further the development of employees. The trainees must be 16 years of age.

Training develops in food service employees interest, co-operation, and intelligent application. It also benefits the food units through a reduction in food and labor costs and other operating expenses. This training raises the standards of the various jobs within the food industry and could have a far-reaching effect upon the stabilization of employment. These training courses, to be of the greatest value, must include not only the correct procedures but also allied subjects pertinent to the job.

The National Restaurant Association is preparing textbooks in conjunction with the U.S. Office of Education for use in teaching vocational classes of restaurant employees.—M. A. W.

Personnel management and training, S. M. GILLAM. *J. Am. Diet. Assocn.* **18,** No. 5 (May 1942), p. 313.

A study of employment methods and local conditions conducted by the staff members of the nutrition department of the New York Hospital led to centralization of employment and to an intensive training program. One person now interviews and hires all employees, selecting the employee most suitable for a given position and transferring employees from one unit to another if advisable. This system has been found generally more efficient than former practices.

Workers are trained both individually and through classes and group discussions. Manuals of work have been prepared for the different groups of workers. New employees, of which there are many at present, are given sufficient preliminary instruction.—M. A. W.

The value of a well-trained meat cutter, E. RUGH. *J. Am. Diet. Assocn.* **18,** No. 3 (March 1942), pp. 166, 168.

Since from 19 to 34 per cent of the raw food cost budget is spent for meat, modern cutting methods should be used for the most economical cutting of the entire carcass or parts of it and to obtain cuts appropriate for use in the individual institution. The dietitian must have a working knowledge of meats and of mechanical equipment.

The institution should have a well-planned unit for meat cutting and storage. A trained meat-cutter's salary will be justified in meat savings. His duties include cutting and storing raw meats, cleaning poultry and fish, and maintaining sanitation in the meat unit. He may also, if his time schedule permits, assist in slicing cooked meats and also do some of the meat cookery.

Aids to constant training of the meat-cutter are: government cutting charts; a meat cookery manual; a skeleton menu chart showing in advance the meats to be served, a chart showing the amounts of meat to be delivered at specified dates, written directions for cleaning poultry and fish, and written directions for proper storage and for sanitary pro-

cedures. Visiting large distributors and meat packers is good experience and training for the meat cutter.—M. A. W.

Training of personnel in the cafeteria, A. GLOVER, JR. *J. Am. Diet. Assocn.* **18,** No. 3 (March 1942), p. 170.

A course in commercial dietetics to meet the immediate need in the South for trained cooks and chefs was requested by the Southern Hotel Managers and started at Tuskegee Institute, Alabama, in 1936. The course is designed to cultivate an appreciation of food; to develop mastery of principles, skills, and techniques; and to encourage creative ability along culinary lines. The apprentice plan was adopted; the 12-month course of instruction and practice is divided into quarters or 12-week periods, beginning with simple and routine tasks and ending with practical experience on a paid job, the students being placed according to their rating in practical and classroom work. Theoretical instruction and laboratory work accompany the practical experience.—M. A. W.

Selection and education of employees, H. C. METCALF. *J. Am. Diet. Assocn.* **18,** No. 3 (March 1942), pp. 156–159.

Underlying work-relations are similar in hospital, hotel, factory, store, and large restaurant, so that industrial personnel policies and techniques may be adapted to any one of these. The science and art of personnel administration are based on the democratic concept that every employee should be given the opportunity to realize the fullest development of his individual capacities. This concept includes adequate compensation; steady employment; freedom of occupational choice; education and training; opportunity for promotion, recreation, and freedom of association. In return the employee should put forth honest effort in the interest of his employer.

To maintain a healthy, competent, contented, loyal body of workers, the hospital administration should attract desirable applicants and employ the best methods of selection, placement, and protection of the employee. It should instruct, train, and retain him through fair treatment and promotion. Operating costs, turnover, employee efficiency and morale are criteria for evaluating the selection and training program. An effective personnel policy, clearly expressed in writing, should serve as an instrument for conveying to the department heads, supervisors, and other employees all problems and factors concerned with employee relations.—M. A. W.

Illinois institutions act to meet food rationing, rising cost, C. R. PENSINGER. *Hosp. Mgt.* **53,** No. 5 (May 1942), pp. 65–67.

Today the food institutions are faced with the problems of rationing, scarcity of some items, the difficulty in securing new equipment, and rising food costs.

In Illinois, substitutes have been employed, such as soybean grits for part of the meat in meat loaves and stews, margarine with added vitamin A in place of butter, finer-ground coffee to make it go farther and still have the same results. Such luxury items as olives, mushrooms, canned fish, and preserves have been omitted. Milk in the skimmed, dried, and evaporated forms is used for cooking; molasses and corn sugar and sirup, in place of cane and beet sugar. In addition, all of the state institutions' farms are planning to can their own vegetables and fruits in the summer.—M. L. G.

The mystery of the broken dish. *Modern Hosp.* **58,** No. 5 (May 1942), pp. 94–95.

In any food service organization dish breakage is of major importance. Some institutions hold the employee responsible and make him pay all or part costs. In some cases it is a good policy to have the employee sign up for the breakage whether he must pay or not.

If possible, select carefully those who are to do the dishwashing, provide adequate help, and stress the importance of the expense involved in breakage. Carelessness due to hurrying to get off duty causes dish breakage to rise. Provide adequate space for scraping and stacking dishes; do not change employees frequently unless one seems to fit in better elsewhere.

Other ways to control dish breakage are: (1) Use a good grade of china; (2) determine reason for cracks and chips; (3) listen to and act upon the advice of employees in the dishwashing units; (4) take an inventory of dishes each month for an overage or shortage; (5) give special instructions as to scraping, stacking, washing, and drying; and (6) give encouragement where it is needed and make the employee realize the material value of all breakable wares.—M. L. G.

Industrial feeding—centralized or decentralized, F. SCHMID. *Am. Restaurant Mag.* **26,** No. 3

(March 1942), pp. 28–30+; No. 4 (April 1942), pp. 28–30+.

Employee feeding in industrial plants has been greatly increased by the national defense and war program. Feeding employees well does more to retain their good will toward management than any other form of employee welfare.

The decentralized plan is most desirable where employees at work are spread over a wide area. A commissary to supply 25 wagons for successful operation should have a good receiving room, storeroom, storage refrigerator, truck-washing facilities, cooking and sandwich-making facilities, and coffee-making equipment. The design of the truck will be governed by the type of menu used.

Centralized systems of feeding are desirable where the time consumed by the average of all workers in reaching the point of service is not too great.

The cafeteria or canteen is regarded as the most satisfactory type of service as both offer the greatest speed and lowest overhead. It is cheaper to stagger employees' lunch periods than to try to serve them all at one time. The extent of refinements depends on permanency; however, the low cost of maintenance should be considered as well as the provision of a pleasant atmosphere.—K. C.

Practical points in the care of cafeteria equipment, E. GILBERT. *Nation's Schools* **29,** No. 5 (May 1942), pp. 44–45.

The care which modern equipment receives will determine its durability and usefulness. Mechanical appliances should be used intelligently and lubricated periodically.

Ranges require regular cleaning, prevention of rust, repair of fire bricks, regulation of burners to conserve power and heat. Refrigerators must be kept clean inside and out; must be defrosted at intervals and have a motor check-up occasionally. Electric mixers must not be overloaded if their life is to be prolonged.

Steamer doors should be left open when the steamer is not in use, and the door wheels should be lubricated frequently. Dishwashing machines should be cleaned thoroughly every day and scoured, if necessary, to remove the dirt and scale; the curtains should be scrubbed and rinsed daily; the machine should be left open when not in use. All the openings and sprayer heads should be cleaned often.

An aluminum cleaner and steel wool is recommended for cleaning aluminum ware, a mild cleaning agent for stainless steel, a mild alkaline cleaning powder for enamelware, steel wool and an alkaline soap for cast iron, and soap with plenty of hot water for earthenware and glassware.—H. L.

Stop that noise. *Hotel Mgt.* **41,** No. 4 (April 1942), pp. 24–25.

During this period of national emergency, when tension and nervousness are likely to be common to normal people, noise that otherwise might be tolerable possesses an "annoyance factor" magnified many times.

Not only does noise irritate the customer, but it affects the efficiency of the restaurant personnel. It may have a direct bearing on waste, since high noise levels make hearing difficult, resulting often in mistakes in orders.

Analysis of the noise problem in the average restaurant reveals three major sources of disturbance: street noises, noise from operations, and noise created by customers. The first of these may be controlled somewhat, indirectly, by provision of insulated doors and windows; air conditioning helps create quieter dining rooms since outside openings must be kept closed at all times.

Operating noises originating in kitchen, pantry, and dishwashing areas may be curbed by attention to passageways between kitchens and dining rooms, by installation of double doors, by isolating or by acoustically treating dishwashing areas. Acoustical materials absorb the energy of the sound and can reduce the general noise level about 50 per cent. Modern materials can be applied easily. Skill in installation, however, plays a major part in the assurance of lasting satisfaction. The cost of adequate acoustical treatment on a per meal basis is surprisingly low—seldom more than $1 per thousand meals if the volume of business is satisfactory.—F. K.

Hawaii still sends its Finest

The finest pineapples! Yes, Hawaii, in spite of being what might be called a war zone, under martial law, with all its problems of transportation, labor, and blackouts, still produces them.

However, it may be that grocers will not be able to supply their customers with *all* the Dole Hawaiian Pineapple Products they formerly did. *The Government is asking for about one out of every three cans of pineapples and about one out of every five cans of juice, for our armed forces.*

Every home economist will understand this necessary ruling. Already they are cooperating by presenting to their classes, and radio and reading audiences, inviting menus and ingenious recipes which include Dole Pineapple Products in lessened quantities. To support this patriotic service, conscientious efforts will be made by this Company to distribute Dole Hawaiian Pineapple Products—Juice, Sliced, Crushed, and Tidbits—so that everybody will have a fair share.

For the sake of variety in breakfast menus, rotate Dole Hawaiian Pineapple Juice with tomato juice, orange juice, and grapefruit juice. All are a good source of vitamins B_1 and C. A 6-oz. glass of Dole Pineapple Juice contains approximately *one-sixth* of the daily recommended allowances of vitamins B_1 and C for the average, active adult.

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A Victory on the Food Front:

America's ABUNDANCE of fine Cheddar Cheese!

MONTHS "before Pearl Harbor" our foresighted government asked the dairy farmers and the cheese producers of America to co-operate in supplying a tremendously increased volume of Cheddar.

Cheese was recognized as one of the vital foods, rich in "protective" and "building" nutrients. More would be needed for the friends of Democracy and for America's fast growing army.

The news of that urgent call for more cheese production started a rumor that there was a shortage for civilian uses. Some families thought it patriotic to curtail their use of cheese.

But dairy farmers and producers worked *hard and fast*. They have kept at their task and this year finds our nation supplied with an *abundance* of this nutritious food . . . enough for her allies, enough for her armed forces, and plenty for civilians at home, too. In fact, Uncle Sam *urges* Americans to eat *more* cheese.

Because dairy farmers and producers, co-operating with the government, went on a full-emergency basis long before war was declared, America today has an abundance of fine Cheddar cheese.

Cheese . . . a concentration of valuable milk nutrients

Making a pound of fine American Cheddar cheese takes more than a gallon of rich, pure milk. That fact explains why cheese offers a number of important milk nutrients in concentrated form.

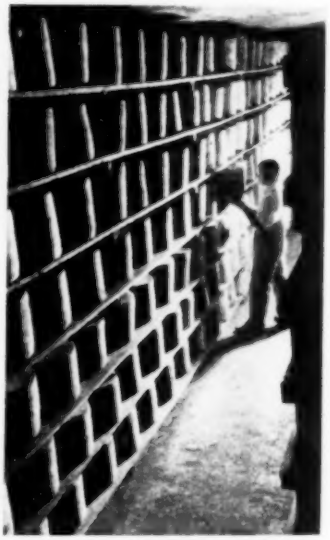
For instance, *milk protein*. Protein, of course, is a basic food requirement for building strong muscles and firm flesh, and for keeping the body tissues in repair. The protein of cheese, coming from milk, is of the highest quality. And most cheeses contain from 20% to 25% of this high-quality protein.

This high percentage of protein plus the milk fat in cheese make it an excellent food source of body fuel or *energy*. Most varieties of cheese are from 25% to 30% milk fat, supply about 100 calories per ounce.

Cheese is one of the richest known food sources of the "twin minerals," *calcium and phosphorus*, which work together to help build and maintain sound teeth and strong bones. For instance, just six ounces of American Cheddar supply approximately 1 gram of calcium and ¾ gram of phosphorus, which is about the amount of these minerals contained in a whole quart of milk.

Because of its milk fat content, cheese is an excellent source of *Vitamin A*. An ounce of cheese supplies approximately 300 U.S.P. units of this vitamin regarded as a dietary essential. Cheese is also a good source of *Vitamin G* (riboflavin), an important part of the B-complex.

As for the digestibility of cheese, the old belief that it was hard to



They kept the Cheddars rolling! By mid-summer 1942 there was cheese enough for our armed forces, our allies and plenty to help build strong Americans at home, too.

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digest has long since been exploded. The United States Department of Agriculture Bulletin, No. 1207, has this to say:

"As regards the thoroughness of digestion, a very large number of experiments carried on in the Department of Agriculture have shown that, when consumed even in relatively large quantities, cheese is very thoroughly assimilated. Furthermore, it caused no physiological disturbances in the large number of tests in which it was used."

Thus, considering the all-round fine nutrition of this food, it is plain why the Government now urges the use of more cheese in the national dietary. Cheese is a specified food on the U. S. Official Food Guide.

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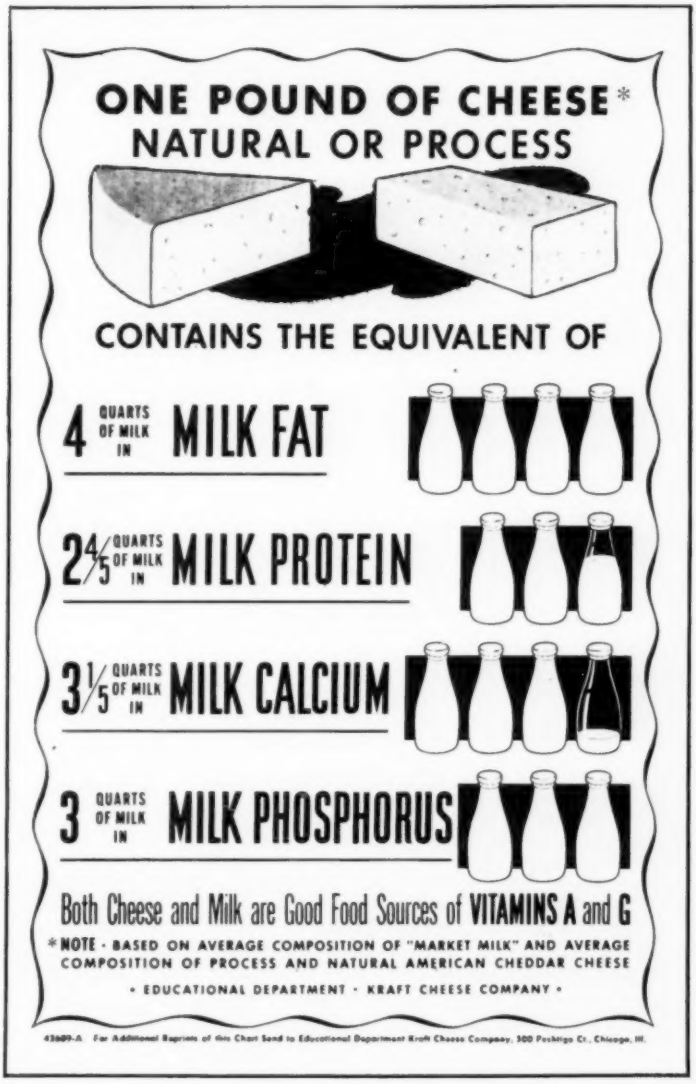
To help you in your work of teaching good nutrition, the Educational Department of Kraft has prepared the above comparative chart, 28" x 25", for classroom use. There is also a bound booklet of informative Kraft advertisements which have appeared in this publication—a compilation that contains many facts about the nutrition of cheese, how it is made, uses, the dairy industry in America, and so forth. Simply send in this order form to get both *free*.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NATURAL OR PROCESS
CONTAINS THE EQUIVALENT OF
4 QUARTS OF MILK IN MILK FAT
2 4/5 QUARTS OF MILK IN MILK PROTEIN
3 1/5 QUARTS OF MILK IN MILK CALCIUM
3 QUARTS OF MILK IN MILK PHOSPHORUS
Both Cheese and Milk are Good Food Sources of VITAMINS A and G
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This book, formerly published by M. Barrows and Company, but for some time out of print, is now being reissued by the American Home Economics Association for the 100th anniversary of the birth of Ellen H. Richards. *Price, $1.50.*

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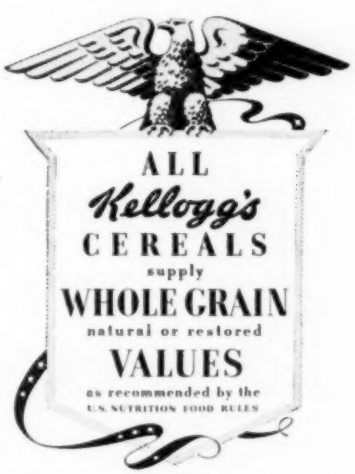

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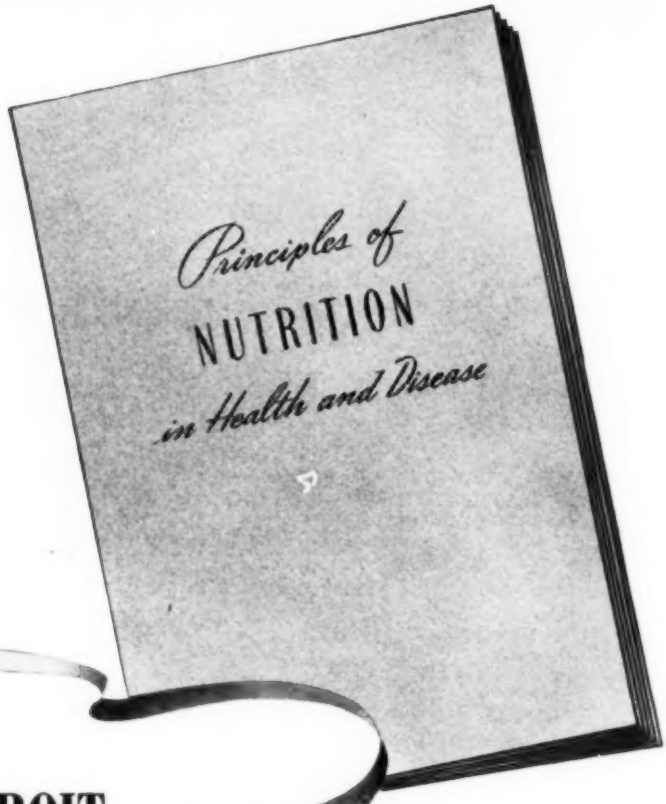

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A: Naturally not. All the vitamins known to science won't take the place of proteins, fats, carbohydrates or minerals.

Q: WHY, THEN, IS THERE SO MUCH TALK ABOUT VITAMINS?

A: Because a vitamin lack constitutes the most common and serious dietary deficiency. Government surveys show that 3 out 4 Americans aren't getting enough vitamins and minerals. According to the recent South Bend survey, this figure might easily be increased to 4 out of 5.

Q: WHICH VITAMINS HAVE BEEN PROVED ESSENTIAL IN HUMAN DIET?

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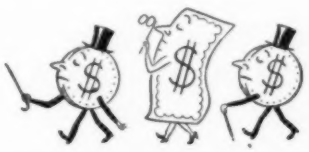

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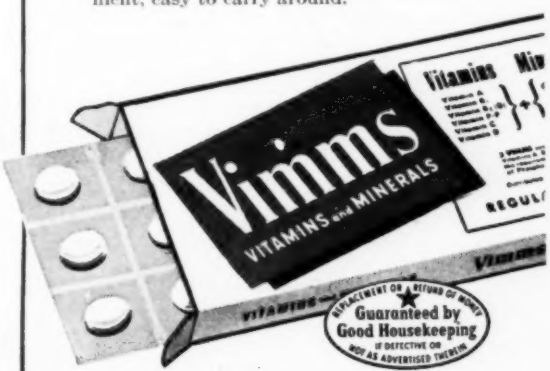

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A	B_1	B_2	P-P	C	D	CALCIUM	PHOSPHORUS	IRON

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BRAISED PORK LIVER WITH VEGETABLES

1 lb. pork liver, slice ½" thick
2 tbsp. flour
¾ tsp. salt
⅛ tsp. pepper
4 tbsp. lard
2 scraped carrots, diced
6 pared potatoes, sliced ¼" thick
1 onion, diced
1 c. tomato juice
1 c. boiling water

Ask for liver from young porkers. Cut liver into 2-inch squares. Roll in combined flour, salt and pepper. Brown in lard. Remove liver from fat. Put carrots, potatoes and onion into pan. Brown slightly. Add liver, tomato juice and boiling water to vegetables. Cover and simmer gently on top of range for 1½ hrs. Thicken gravy, if desired.

MENU

Braised Pork Liver with Vegetables
Orange and Water Cress Salad
Whole Wheat Rolls
Baked Cup Custards with Berry Sauce
Milk *Coffee*

THE NUTRITIONAL IMPORTANCE OF PORK LIVER

Liver holds a unique place because of its exceptional combination of nutritional values. It is a protein food of the first rank. It is among the best sources of iron. It is a rich source of many vitamins. It supplies many of the minerals required by the body, except calcium.

With the realization of liver's high nutritional value came also the realization that it is one of the outstanding "protective" foods, the foods that guard us against deficiency disease. In consequence nutritionists began to recommend that it be served at least once a week on the family table.

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When it is to be ground or chopped, handling is easier if it is first dropped into boiling water and simmered for a few minutes, before grinding.

To Braise Whole: Soak first in cold salted water for ½ hr. Then remove outside membrane. Dredge with flour; brown in bacon fat. Add desired seasonings. (Vegetables may be cooked with the liver—tomatoes, celery, cubed potatoes, onions, carrots.) Place vegetables in casserole, with the liver on top. Add ½ cup of liquid. Cover and cook on top of range or in slow oven (300° F.) for about 30 min. per lb.

A little lemon juice, tomato juice or vinegar may be added to the liver, after browning, if desired.

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Peel 5 medium potatoes and slice thin. Put layers in greased bake dish. Dot with butter, sprinkle with flour and salt. Pour over 1 cup Carnation Milk mixed with 1 cup water. Bake in a hot oven (400° F.) until tender. (About 1 hr.) Serves 6.

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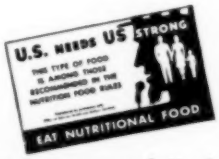

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Put cranberries and apples through food chopper. Quarter whole oranges and lemon, remove seeds and put through chopper. Add sugar and syrup and blend. Chill in refrigerator a few hours before serving. Makes 1½ quarts relish.

*Or use 1 cup maple syrup or ½ cup honey.

WARTIME CRANBERRY SAUCE

(with peacetime goodness)

1 cup corn syrup* (*dark or white*), 1 cup sugar, 1¾ cups water, 4 cups **Eatmor Cranberries**

Boil corn syrup, sugar and water together 5 minutes. Add cranberries and boil, without stirring, until all the skins pop open—about 5 minutes. Remove from heat and cool in saucepan. Makes 1 quart sauce.

*Or use 1 cup maple syrup or ½ cup honey.

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